

Phylogenetic Analysis of the New World Family Heterothripidae (Thysanoptera, Terebrantia) based on Morphological and Molecular Evidence

Supplemental Material

Veronica Pereyra^{a,*}, Adriano Cavalleri^b, Claudia Szumik^a and Christiane Weirauch^c

^aUnidad Ejecutora Lillo-CONICET-Fundación Miguel Lillo, Miguel Lillo 251, CP 4000, Tucumán, Argentina

^bInstituto de Ciências Biológicas, Universidade Federal do Rio Grande, Rua Mal. Floriano Peixoto, 2236, São Lourenço do Sul, RS, Brazil

^cDepartment of Entomology, University of California, Riverside, CA, U.S.A.

Abstract

The New World family Heterothripidae (~90 spp., four genera) comprises flower-feeding and ectoparasitic thrips. The monophyly of the group has remained untested and species-level relationships were unknown. Morphological (123 characters) and molecular (28S rDNA D2 and D3-D5, H3, and partial COI) data were compiled to reconstruct phylogenetic relationships of this group. The ingroup was represented by 65 species of the four recognized Heterothripidae genera (*Aulacothrips* Hood, *Heterothrips* Hood, *Lenkothrips* De Santis & Sureda, and *Scutothrips* Stannard). The monophyly of Heterothripidae was recovered in the total evidence and molecular data only analyses with the ectoparasitic *Aulacothrips* placed as the sister group of the remaining Heterothripidae. The large genus *Heterothrips* (>80% of the species-level diversity), which was thoroughly sampled in our analyses (56 species), was recovered as paraphyletic with respect to *Scutothrips* and *Lenkothrips*. We conclude that additional morphological and molecular data would be desirable before revising the classification of Heterothripidae

Keywords

cladistics; ectoparasitic thrips; flower feeding thrips; morphology

Supplementary material 1. Material studied, depositary museums, GenBank accession numbers, collecting data.

Material studied	Number / Sex	Depository institution	Locality	Collecting plant	GenBank accession number
<i>Aeolothrips duvali</i> *	1 ♀* 3 ♀ 2 ♂	IFML NMNH / UNAM	USA: California, Riverside Co, Painted Canyon, Mecca Hills; Texas, El Paso, Molenman Co.; California, Mojave Desert; Arizona, Pinal Co. Mexico: Baja California, Is. Tortugas; Matamoros.	Undetermined vegetation; <i>Phaelia</i> sp.; <i>Actinea odorata</i> ; cotton fields.	
<i>Aeolothrips intermedius</i> *	1 ♀* 1 ♂* 2 ♀ 3 ♂	IFML SMF / NMNH	Turkey: Hatay, Madenli Belediyesi, 36°26.321N 35°55.781W, 51 feet / 6 KM from Gelibolu, Highway from Istanbul to Gallapoli. 40°21.983N 26°37.459E. Germany: Rheingau Lorchhausen Hessen, Rheinland Rotanfels Nahe. Spain: Andalucia, province Granada, Sierra Nevada 1250 mts. Italy: Umbriem, province Perugia Crocicchie 500 m.	Citrus Field, onion field, <i>Echium vulgare</i> ; <i>Euphorbia chrarias</i> .	
<i>Aeolothrips kuwanaii</i> *	1 ♀*	IFML	USA: California, Riverside, Two tree's trail.	<i>Ricinus comunis</i> .	
<i>Arorathrips xanthius?</i> *	1 ♀*	IFML	Costa Rica: Heredia province, La Selva biological station, 70m. 10°25.353'N 84° 0.87'W.	Secondary scrub, banana.	
<i>Aulacothrips minor</i> *	4 ♀*	UFRGS	Brazil: São Paulo, Itirapina.	<i>Schefflera vinosa</i> .	
<i>Aulacothrips amazonicus</i> *	1 ♀*	UFRGS	Brazil: Pará, Ilha de Jurupari.	Associated with <i>Ramedia</i> treehoppers on <i>Solanum</i> shrubs.	
<i>Aulacothrips dictyotus</i> *	2 ♀*	UFRGS	Brazil: São Paulo, Mogi-Guaçu.	Associated with <i>Aetalion reticulatum</i> on <i>Xylopia</i> shrubs.	
<i>Bradinothrips williamsi</i> *	1 ♀*		Costa Rica: Heredia province, La Selva biological station, 70m. 10°25.353'N 84°0.087'W.	Sweep scrub / banana.	
<i>Bregmatothrips venustus</i> *	3 ♀*	IFML	Costa Rica: Guanacaste province, Palo Verde N.P. along main road, 30m. 10°20.678'N 85° 20,353'W; Santa Rosa N.P. 300m. 10°50.132'N 85°37 0.35'W.	Sweep dry forest; green dry grass.	
<i>Caliothrips phaseoli</i> *	1 ♀*	IFML	Costa Rica: Guanacaste province, Santa Rosa N.P. 300m. 10°50.132'N 85°37,035'W.	Green dry grass.	
<i>Chilothrips sp</i> *	1 ♀*	IFML	Costa Rica: Heredia province, La Selva biological station. STR tr 100m. 10°26.295'N 84°0.947'W.	Sweep scrub/banana.	
<i>Dactuliothrips boharti</i> *	1 ♀* 3 ♀ 3 ♂	IFML / SMF / NMNH / UCR	USA: California, Riverside, Box Spring Mountain ; Kern Co., Tehachapi Pass; Riverside Co., 2 Mi W, Lara Mathows; Arizona Tempe.	Undetermined vegetation; <i>Phacelia</i> sp. (Boraginaceae).	
<i>Dactuliothrips kaszabi</i> *	4 ♀* 3 ♂	IFML / MLP /	Argentina: Mendoza Uspallata; Neuquén, La Begonia; Chubut, Arroyo Pescado /19.5 km E.	<i>Prosopis alpataco</i> ;	

		UCR /	Shaman. Chile: Chile chico, Aisen.	undetermined shrubs.
<i>Dactuliothrips prosopis</i> *	4♀* 4♂	IFML / EEA Mendoza INTA	Argentina: Mendoza, Gustavo Andre; Uspallata.	<i>Prosopis alpacato</i> .
<i>Desmothrips broomei</i> *	2♀* 2♂	ANIC / IFML	Australia: Western Australia.	Acacia eriopoda
<i>Dendrothrips ornatus</i> *	1♀*	IFML	USA: California, Riverside, UCR.	Undetermined vegetation.
<i>Dorythrips moundii</i> *	1♀*	IFML	Argentina: Mendoza, El Carrizal.	<i>Zuccagnia punctata</i> .
<i>Echinothrips selaginellae</i> *	1♀*	IFML	Costa Rica: Heredia province, La Selva biological station 61m. 10°25.613'N 84°0.122'W.	Sweep clearing by river.
<i>Elixothrips brevisetis</i> *	1♀*	IFML	Costa Rica: Heredia province, La Selva biological station 77m., camino experimental North to Lindero Occidental. 10°25.605'N 84°1.53'W.	Sweep rainforest trail.
<i>Erythrothrips arizonae</i> *	1♀* 8♀ 7♂	IFML / CAS / SMF	USA: California, San Bernardino Co., Sweeney Granite mountains, Desert research center. Norris Camp 1207m. 34°81'N 115°63' W; Nevada, Sta. Rita; Arizona, Phoenix.	<i>Yucca</i> sp.; undetermined vegetation.
<i>Erythrothrips gemmatus</i> *	1♀* 2♀ 3♂	IFML / NMNH / UCR	Argentina: Mendoza, Gustavo Andre; Neuquen, Cuesta Sta. Julia. Chile: Atacama; S. Gregorio, Magallanes, 30 km SO Caldera.	<i>Prosopis alpacato</i> ; undetermined vegetation.
<i>Frankliniella sp.</i> *	1♀*	IFML	Argentina: Mendoza.	Undetermined vegetation.
<i>Frankliniethrips vespiformis</i> *	1♀* 9♀ 3♂	IFML / NMNH / ANIC / UCR	Mexico: Chiapas, 4.1km NW from La Palma on road to La Cienaga, 901m. 16.54°N 93.14°W; Hidalgo. Barbados. Brazil: Paraná, Pernambuco. Fiji. Guatemala: Antigua. Guadalupe: French West Indies. Is. Reunión. Trinidad. USA: Palm Spring; Josephine Canyon Sta Rita Mts; Arizona, Santa Cruz Co.	Undetermined vegetation On cacao leaves.
<i>Halmathrips sp</i> *	2♀*	IFML	Costa Rica: Heredia province, La Selva biological station. STR trl, 99m. 10° 25.87'N 84° 1.46'W.	Sweep rainforest trail.
<i>Halmathrips sp</i> *	1♀*	IFML	Costa Rica: Heredia province, La selva biological station, 70m. 10° 25.353N 84°0.087W.	Sweep secondary scrub / banana.
<i>Helionothrips funebris</i> *	1♀*	IFML	Costa Rica: Heredia province, La selva biological station, 70m. 10° 25.353N 84°0.087W.	Sweep secondary scrub / banana
<i>Heliiothrips haemorrhoidalis</i> *	1♀*	IFML	USA: California: Riverside, UCR campus.	Undetermined vegetation.
<i>Heliiothrips haemorrhoidalis</i> *	2♀*	UFRGS	Brazil: Rio Grande do Sul, Porto Alegre.	<i>Ficus</i> sp.
<i>Heterothrips aesculi</i>	5♀ 3♂	NMNH / SMF	USA: South Carolina, Summerville; Manning; Texas, Palacios; Alabama, Wetumpka.	<i>Azalea indica</i> ; <i>Aesculus pavia</i> ; wild grape.
<i>Heterothrips analis</i>	6♀ 4♂	NMNH / SMF	USA: Maryland, Plum Point; Crows; New Jersey, Cape May; Pemberton; Ohio, Clark Co.; Illinois, Giant City St. Pk.	Wild rose; <i>Magnolia virginiana</i> .

<i>Heterothrips angusticeps</i>	5♀ 1♂	NMNH	Brazil: Santa Catarina, Nova Teutonia.	Undetermined vegetation.
<i>Heterothrips arisaemae</i>	4♀	NMNH / SMF	USA: Illinois, Urbana, Augerville woods; Munsie.	<i>Arisaema triphyllum</i> .
<i>Heterothrips auranticornis</i>	5♀ 3♂	NMNH / SMF	USA: Georgia, Clayton; Minesota, Anoka.	<i>Helanium</i> sp.;
<i>Heterothrips australis</i> Porto Alegre*	3♀* 1♂	UFRGS	Brazil: Rio Grande do Sul, Porto Alegre, Viamao.	<i>Helianthus</i> sp. <i>Borreria verticillata</i> .
<i>Heterothrips australis</i> Alto Paraiso*	2♀*	UFRGS	Brazil: Goiás, Alto Paraíso de Goiás.	<i>Borreria</i> sp.
<i>Heterothrips azaleae</i>	2♀ 5♂	NMNH / SMF	USA: Maryland, Beltsville; Georgia, Echols Co.; Illinois, Wolf lake, Pine Hills; South Carolina, Clemson; Summerville.	<i>Azalea nudiflora</i> ; <i>Azalea</i> sp.;
				<i>Azalea Formosa</i> ; "birch".
<i>Heterothrips bicolor</i>	1♀	NMNH	Brazil: Santa Catarina, Nova Teutonia.	Undetermined vegetation.
<i>Heterothrips brasiliensis</i>	4♀ 2♂	CAS	Brazil: Santa Theresa.	"Biginia"; Tobacco.
<i>Heterothrips cacti</i> *	1♀* 5♀ 3♂	IFML / NMNH / SMF / MLP	Argentina: Tucuman, road to Ticucho, Cruce India Muerta River; La Rioja.	<i>Opuntia</i> sp., flowers of cactus; Jarilla.
<i>Heterothrips clusiae</i>	3♀ 2♂	NMNH	Suriman: Landerij.	Undetermined vegetation.
<i>Heterothrips condei</i>	3♀ 1♂	CAS	Brazil: Santa Theresa; Santa Catarina, Nova Teutonia; Rio de Janeiro, Petrópolis.	<i>Dalbergia</i> ; rose.
<i>Heterothrips cuernavaca</i>	1♀ 2♂	NMNH	Mexico: Cuernavaca.	Composite flowers.
<i>Heterothrips decacornis</i>	6♀ 3♂	NMNH	Mexico: Guadalajara; Oaxaca; Puerto Rico, Rio Piedras, Exp. Asoc. Prod. Azuc.	Malphiaceae; undetermined vegetation.
<i>Heterothrips decorates</i>	3♀ 2♂	NMNH	Brazil: Santa Catarina, Nova Teutonia.	Tiliaceae: <i>Luehea</i> sp. ; dry branches.
<i>Heterothrips fimbriatus</i>	2♀	NMNH	Panama: Barro Colorado Is., Gatun Lake, Panama Canal; Barbados, British West Indies.	In flight, lily.
<i>Heterothrips flavicornis</i>	8♀ 5♂	NMNH / SMF / MLP	Panama: Sona.	"Nance".
<i>Heterothrips flavicuris</i>	5♀ 3♂	NMNH	Panama: Barro Colorado Is., Gatun Lake, Panama Canal. Peru: Rioja, Depart. San Martin, ca.900m. Cuba: Las Merceditas (Northof Vinales), Pinar del Rio.	<i>Byrsonima coriacea</i> ; <i>Byrsonima spicata</i> ; <i>Banisteria elegans</i> ; <i>Banisteria spicata</i> ; shrubs among pines.
<i>Heterothrips flavidus</i>	2♀	CAS	Brazil: Santa Catarina, Nova Teutonia.	"Serjania"; undetermined vegetation.
<i>Heterothrips flavitibia</i> *	1♀* 2♀	IFML / CAS	Argentina: Santiago del Estero: 2km North of Rapelli, 26°22'32.7"S 64°30'14.8"W, 382m.	Undetermined vegetation;

<i>Heterothrips gillettei</i>	2♀ 1♂	CAS	Brazil: Minas Gerais. USA: Colorado, Ft Collins Tat-tail.	<i>Sergania</i> sp. No data.
<i>Heterothrips lasquerellae</i>	5♀ 3♂	NMNH	USA: Texas, Brownsville; Driscoll.	<i>Lesquerella gracillis</i> .
<i>Heterothrips lewisi</i> *	1♀*	IFML	Costa Rica: Guanacaste province, Santa Rosa N.P. 300m. 10°50.132'N 85°37.035'W.	Sweep green dry grass.
<i>Heterothrips lyoniae</i>	5♀ 3♂	NMNH	USA: New Jersey, Browns Mills; Pemberton; Maryland, Riggs road, Paint brunch.	<i>Pieris mariana</i> ; <i>Lyonia mariana</i> ; <i>Rhododendron viscosum</i> .
<i>Heterothrips marginatus</i>	3♀ 1♂	NMNH	Brazil: Belém, Pará (Instituto Agronomico do Norte).	<i>Andropogon</i> sp. with some intermixed living and dead vegetation.
<i>Heterothrips mexicanus</i>	3♀ 2♂	NMNH	Mexico: Durango, Tlahualilo.	<i>Sida hederacea</i> .
<i>Heterothrips miconiae</i>	4♀ 4♂	NMNH / MLP	Peru: Cajamarca, Vicinity of Celendin.	<i>Miconia grisea</i> .
<i>Heterothrips minor</i>	1♀	NMNH	Panama: Sona.	“Nance”.
<i>Heterothrips moestus</i>	2♀	NMNH	Argentina: Entre Rios, Gualaguay.	Undetermined vegetation.
<i>Heterothrips myrceugenellae</i>	2♀ 2♂	MLP	Argentina: Rio Negro, Bariloche.	Arrayan.
<i>Heterothrips obscurus</i>	2♀	NMNH	Brazil: São Paulo, Campinas.	<i>Byrsonima intermedia</i> .
<i>Heterothrips ornatus</i>	3♀	NMNH	Peru: San Martin, Rioja, 900m.; Huanuco, Shapajilla.	<i>Banisteria elegans</i> , undetermined vegetation.
<i>Heterothrips paulistarum</i> Campinas 2*	4♀*	UFRGS	Brazil: São Paulo, Campinas.	<i>Niedenzuella glabra</i> .
<i>Heterothrips paulistarum</i> Campinas*	1♀*	UFRGS	Brazil: São Paulo, Campinas.	<i>Niedenzuella glabra</i> .
<i>Heterothrips paulistarum</i> Itirapina*	1♀*	UFRGS	Brazil: São Paulo, Itirapina.	<i>Peixotoa</i> sp.
<i>Heterothrips pectinifer</i>	5♀ 4♂	NMNH	USA: Arizona, Tempe; California, Dept. Agr. Morongo valley; Johannesburg; New Mexico, Santa Fe; Texas, Presidio.	Indian Geranium; <i>Sphaeralcea ambigua</i> ; <i>Sphaeralcea lobata</i> ; <i>Sphaeralcea angustifolia</i> ; Malva flws.
<i>Heterothrips pedicellatus</i>	4♀	UFRGS	Brazil: São Paulo, Mogi-Guacu.	<i>Diplopterys pubipetala</i> .
<i>Heterothrips pilarae</i> *	6♀* 2♂	IFML / EEA	Argentina: Mendoza, El Carrizal.	<i>Trichomaraia usillo</i>

		Mendoza INTA		
<i>Heterothrips prosopidis</i>	4♀ 3♂	NMNH	USA: Texas, Brownsville; Presidio; California, 10mi. W. of Randsburg; Arizona, Eloy.	<i>Prosopis</i> spp. (Mesquite flws).
<i>Heterothrips pubescens</i>	2♀	NMNH	Panama: Barro Colorado Is., Gatun Lake, Panama Canal.	<i>Byrsonima coriacea</i> Silvestre Catkins scrub oak (probably <i>Quercus marilandica</i>).
<i>Heterothrips quercicola</i>	5♀ 4♂	NMNH	USA: New York, Babylon.	Miscellaneous vegetation.
<i>Heterothrips salicis</i>	3♀	NMNH	USA: Michigan, Huron Co.; California, Markleeville.	<i>Psyllocarpus?</i> <i>Phyllocephalus.</i>
<i>Heterothrips savanicus*</i>	6♀*	IFML / UFRGS	Brazil: São Paulo, Itirapina.	<i>Psidium guajava.</i>
<i>Heterothrips sericatus</i>	7♀ 5♂	NMNH	Puerto Rico: Rio Piedras, Estc. Exp. Asoc. Prod. Azuc.; Barceloneta; Guapiles, Limon; San Juan Palo Seco. Panama: Barro Colorado Island, Gatun lake, Panama Canal. Trinidad: British West Indies near San Fernando.	
<i>Heterothrips spinosus</i>	4♀ 2♂	CAS	Brazil: col. Rio Bonito.	<i>Solanum</i> sp.
<i>Heterothrips stellae*</i>	5♀* 1♂	IFML / EEA Mendoza INTA	Argentina: Mendoza, Gustavo Andre.	<i>Prosopis alataco.</i>
<i>Heterothrips striatus*</i>	2♀* 2♀ 1♂	IFML / CAS	Brazil: Cangucu; Sta Theresa, Espirito Santo; São Paulo.	<i>Eugenia</i> sp.; Jurubeba.
<i>Heterothrips trinidadensis</i>	4♀ 1♂	NMNH	Trinidad: El Tucuche.	In flight.
<i>Heterothrips varitibia</i>	1♀ 2♂	CAS	Brazil: São Paulo.	“Jurubeba”.
<i>Heterothrips vernus</i>	4♀ 3♂	NMNH	USA: Texas, Francitas; Palacios.	Miscellaneous vegetation; <i>Andropogon saccharoides.</i>
<i>Heterothrips vitis</i>	10♀ 6♂	NMNH	USA: Maryland, Plummer's Island (near Washington DC); Great Falls; Washington D.C.; Texas, Palacios; Virginia, Tazewell; Colorado, Boulder; Mill Gulch.	Grape flws. wild rose, <i>Vitis vulpina.</i>
<i>Heterothrips watsoni</i>	8♀ 2♂	NMNH	Colombia: Rio Frio, Quebrada Rodriguez.	Undetermined vegetation.
<i>Heterothrips xolismae</i>	4♀	NMNH	USA: Maryland, Odenton; Virginia, Vienna.	<i>Xolisma ligustrina;</i> <i>Xolisma</i> sp.
<i>Heterothrips sp.3*</i>	1♀*	IFML	Brazil: Alto Paraíso.	Byrsonima flowers.
<i>Heterothrips sp.</i>	1♂*	IFML	Cost Rica: Guanacaste province, Palo Verde N.P. along main road 30m. 10°20.678'N 85°20.353'W.	Sweep dry forest scrub.
<i>Heterothrips sp. Porto Alegre*</i>	1♀*	IFML / UFRGS	Brazil: Rio Grande do Sul, Porto Alegre.	<i>Trema micrantha.</i>
<i>Heterothrips sp.1*</i>	1♀*	IFML	Argentina: Salta: RP6, 10km N del camping El	Undetermined

<i>Heterothrips sp.2</i>	6♀*	IFML	potrerillo, 26°02'55.15"S 65°31'31.84"W. Argentina: Neuquén, La Begonia.	vegetation. Undetermined vegetation.
<i>Hydatothrips sp.*</i>	1 ♀*	IFML	Brunei: Temburong District, Temburong N.P., Kuala Belalong FS 80-320m. 4°32.96'N 115°09.695'E.	Swamp dipterocarp.
<i>Lenkothrips daedali</i>	1♀ 1♂	SMF	French Guyana: Les Nourages.	<i>Heteropterys multiflora.</i>
<i>Lenkothrips guaraniticus*</i>	1♀*	UFRGS	Brazil: Rio Grande do Sul, Porto Alegre.	<i>Janusia guaranitica.</i>
<i>Lenkothrips kaminskii*</i>	2♀*	UFRGS	Brazil: Rio de Janeiro, Parati.	<i>Stigmaphyllon sp.</i>
<i>Lenkothrips sensivus?*</i>	1♀*	IFML / UFRGS	Brazil: São Paulo, Campinas.	<i>Niedenzuella glabra.</i>
<i>Microcephalothrip s abdominalis*</i>	2 ♀* 1♀	IFML	USA: California, Orange County. Costa Rica: Guanacaste province, Santa Rosa N.P. 300m. 10°50.132'N 85°37.035'W.	Sweep green dry grass.
<i>Neohydatothrips sp.*</i>	1♀*	IFML	Costa Rica: Heredia province, La Selva biological station 77m. camino experimental North to Lindero Occidental. 10°25.605'N 84°1.53'W.	Sweep rainforest trail.
<i>Scirtothrips sp.*</i>	1♀*	IFML	French Guiana: Roura, Amazon nature lodge, 307m. 4°33.583'N. 52°12.43'W.	Undetermined vegetation.
<i>Scutothrips nudus Itirapina*</i>	1♀*	UFRGS	Brazil: São Paulo, Itirapina.	<i>Peixotoa sp.</i>
<i>Scutothrips nudus Campinas*</i>	1♀*	UFRGS	Brazil: São Paulo, Campinas.	<i>Niedenzuella glabra.</i>
<i>Scutothrips peruvianus</i>	5♀ 4♂	NMNH	Peru: Beni, Vicinity of Sani, 849 m; Departamento de San Martin.	Undetermined vegetation; <i>Banisteria elegans</i>
<i>Selenothrips rubrocinctus*</i>	2♀*	IFML	Brazil: Rio Grande do Sul, Porto Alegre.	<i>Acca sp.</i>
<i>Stomatothrips flavus*</i>	2♀* 3♀ 2♂	IFML NMNH	Costa Rica: Guanacaste province, Santa Rosa N.P. 300m. 10°50.132'N 85°37.035'W. USA: Texas, Brownsville, Carrizo spgs. Mexico: Monterrey, Tlahualilo.	Sweep green dry grass; undetermined vegetation; <i>Malva rotundifolia;</i> cotton.
<i>Thrips sp*</i>	1♀*	IFML	Costa Rica: Heredia province, La Selva biological station, STR trl, 99m. 10°25.87'N 84°1.46'W.	Sweep rainforest trail.

*Material extracted

ANIC, Australian National Collection, CSIRO Entomology, Canberra; CAS, California Academy of Sciences; IFML, Instituto Fundacion Miguel Lillo; MLP, Museo de Ciencias Naturales de La Plata; NMNH, U.S. National Museum of Natural History; SMF, Forschungsinstitut Senckenberg, Frankfurt; UCR, University of California Riverside, Entomology Museum; UFRGS, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil; UNAM, Universidad Nacional Autonoma de Mexico.

Supplementary material 2

Character List

(Characters indicated with * correspond to new observations for the family)

0. Length-width pronotum ratio.
1. Length-width head ratio.
2. Length-width mesosternellum ratio.
3. Antennal segments III/IV length ratio.
4. Antennal segments III/V length ratio. Antennal segment III is elongated and about 1.5 to 2.5 times longer than the antennal segment V; this is more evident in *Aulacothrips* species where the segment III is more than 10 times longer than segment V (Fig. 1).
5. Antennal segments VIII/IX length ratio.
6. Length ratio ventral eye/head.
7. Anterior and posterior ocellus diameter ratio.
8. Interocellar setae / posterior ocellus length ratio.
9. Maxillary palps segment II/III length ratio.
10. Mesonotum central and lateral setae length ratio.
11. Anterior and posterior metanotum setae length ratio.
12. Female abdominal segment IX/VIII median length ratio.
13. Male abdominal segments I/X median length ratio.
14. Male abdominal tergite I median ridge: (0) present; (1) absent.
15. Female abdominal tergite I sculpture pattern: (0) simple; (1) horizontal; (2) reticulatearcuate (3) no sculpted; (4) central triangle, outside horizontal sculpture.
16. Antennal segments number: (0) 9; (1) 8; (2) 7.
17. Antennal segment I/II coloration: (0) dark; (1) pale apex; (2) apical half pale; (3) basal half pale; (4) pale; (5) dark apex.
18. Antennal segment III coloration: (0) dark; (1) pale base; (2) basal half pale; (3) dark apex; (4) pale.
19. Antennal segment IV coloration: (0) dark; (1) pale apex; (2) pale base; (3) basal half pale; (4) dark apex; (1) pale.
20. Sensoria antennal segments III–IV number: (0) 1; (1) 2.
21. Sensoria antennal segments III–IV: (0) emergent; (1) linear.

22. Sensoria emergent on antennal segments III–IV: (0) cone; (1) forked; (2) oval emergent.
23. Sensoria linear on antennal segment III/IV: (0) transversal band around the apex of the segments; (1) longitudinal straight band; (2) transversal band around the apex with a loop on the sides; (3) convoluted, with multiples loops all around the antennal segments. Sensoria in Heterothripidae can extend around the apex of the antennal segments III/IV as in species of *Heterothrips* and *Scutothrips* (Figs. 2–3). In *Lenkothrips* this row of sensorial pores is simple and it curves on the sides of the segment reaching the middle of the antennal segments (Figs. 4–5). In some species of *Aulacothrips*, sensoria curve multiple times and extend across the entire antennal segments III–IV (Fig. 1), but the sensoria in *A. amazonicus* and *A. levinotus* are similar to those in *Lenkothrips* species.
24. Sensoria transversal around the apex of segment III/IV: (0) 1 row of sensorial pores; (1) 2 rows of sensorial pores; (2) 3 rows of sensorial pores. In Heterothripidae, sensoria are represented by a row of sensorial pores extending between antennal segments III–IV with a presumably chemosensory function. These pores can be arranged in one, two, or even more rows (Figs. 2–3).
25. Sensoria longitudinal on antennal segment III: (0) straight; (1) curve at apex.
26. Sensoria on antennal segment IV: (0) longitudinal straight band; (1) longitudinal straight band with a curved apex; (2) longitudinal straight band with a curved apex that reaches the middle of the segment.
27. Sensoria on antennal segments III/IV: (0) internal markings absent; (1) weak internal markings; (2) strong internal markings.
28. Sensoria on antennal segments V: (0) cone; (1) linear.
29. Terminal antennal segments: (0) moliniform; (1) last two antennal segments close together; (2) last three antennal segments close together; (3) last four antennal segments close together; (4) last five antennal segments close together.
30. Antennae microtrichia: (0) absent; (1) only in the first segments; (2) in all the segments.
31. Head cheeks: (0) straight; (1) with a notch behind the eyes; (2) neck constricted; (3) with a notch behind the eyes and neck constricted. *Lenkothrips* and most *Heterothrips* species have straight gena (Fig. 8). Species of *Aulacothrips* and *Scutothrips* have gena with a notch behind the eyes (Figs. 6, 9) and in addition the neck is constricted in species of *Scutothrips* (Fig. 7).
32. Head ocellar setae: (0) three pairs; (1) two pairs.

- 33.** Head ocellar setae*: (0) ocellar setae II longer than III; (1) ocellar setae II same length than setae III; (2) Ocellar setae III longer than II. Ocellar setae II are longer than setae III in *Aulacothrips* species (Fig. 6). In the rest of the family these two setae are similar in length (Figs. 7–8).
- 34.** Ocellar setae III position*: (0) behind of eyes anterior border; (1) aligned with the eyes anterior border; (2) in front of eyes anterior border. Ocellar setae III are located anterior to the posterior ocellus – and their bases are wide apart – in *Heterothrips*, *Lenkothrips* and *Scutothrips* (Fig. 8). In *Aulacothrips*, these setae are aligned with the anterior margin of the posterior ocelli, with their bases being close together (Fig. 6).
- 35.** Relative position between ocellar setae III and anterior ocelli*: (0) the base of the setae is inside the diameter of the ocelli; (1) the base of the setae is on the edge of the ocelli diameter; (2) the base of the setae is outside of the ocelli diameter.
- 36.** Post ocular setae (PO): (0) not developed; (1) mixed; (2) developed.
- 37.** PO setae layout: (0) in one line; (1) in two lines; (2) in several lines.
- 38.** Compound eyes posterior ommatidia*: (0) pale; (1) some ommatidia brownish-colored. In a ventral view the compound eye ommatidia are pale in *Aulacothrips* species (Fig. 9). In other members of Heterothripidae, some ommatidia may show some brownish color (Figs. 10–11).
- 39.** Head-pronotum join: (0) Broad; (1) narrow.
- 40.** Tentorial arms: (0) stout; (1) slender.
- 41.** Tentorial arms: (0) straight with a small lateral prolongation; (1) straight without lateral prolongation; (2) not developed.
- 42.** Tentorial bridge: (0) absent; (1) present.
- 43.** Maxillary palp segment II: (0) with divisions; (1) not divided.
- 44.** Mouth cone: (0) regular; (1) apex touch the pronotum base; (2) apex touch the coxa I.
- 45.** Foreleg setae: (0) pointed apex; (1) blunt apex. Setae on the legs are short and acute in most Heterothripidae taxa. Only *Aulacothrips* species have setae with a blunt apex on the forelegs.
- 46.** Fore femur spines: (0) absent; (1) present.
- 47.** Interantennal projection*: (0) arms closely separated; (1) arms widely separated. A pair of small projections is located on the apex of the head between the first antennal segments (Figs. 10–12). The arms of these interantennal projections are close together in *Lenkothrips* and those species of *Heterothrips* that also possess a comb of microtrichia on the posterior

margin of the abdominal tergites (Figs. 10–11). In contrast, the arms are further apart (Fig. 12) in *Scutothrips* and species of *Heterothrips* with a craspeda on the posterior margin of the abdominal tergites.

48. Interantennal projection*: (0) long division short; (1) deep long division.
49. Pronotal posteromarginal setae: (0) at least one pair prominent; (1) none pair prominent; (2) all prominent. *Aulacothrips* is the only member of Heterothripidae that has prominent setae on the postero-marginal border of the pronotum (Fig. 13); in all other members of the family these setae are short (Figs. 14–15).
50. Pronotum sculpture: (0) striate; (1) reticulate-striate; (2) reticulate; (3) excavated.
51. Pronotum sculpture: (0) strong; (1) soft; (2) strong with soft reticulation in the center.
52. Pronotum microtrichia: (0) absent; (1) present.
53. Pronotum sculpture internal marks: (0) absent; (1) with some inner dotted reticules; (2) with inner dotted pattern and internal marks inside the reticules.
54. Pronotum anterior ridge: (0) absent; (1) present. In addition, *Aulacothrips* species possess a ridge close to the anterior margin of the pronotum (Fig. 13).
55. Mesosternum: (0) entire; (1) divided in mesosternum and mesoepisternum; (2) divided in mesosternum, mesoepisternum and mesopreepisternum but the sutures between the last two plates are not complete; (3) divided in mesosternum, mesoepisternum and mesopreepisternum.
56. Mesosternellum setae: (0) absent; (1) present.
57. Mesosternellum: (0) fused to the metasternum; (1) partially fused to the metasternum; (2) different plate from the metasternum.
58. Metasternum base: (0) straight; (1) concave.
59. Mesonotum central and lateral setae relative position: (0) central in front of the lateral; (1) aligned; (2) central behind lateral setae.
60. Mesonotum central setae number: (0) one pair; (1) two to four pairs.
61. Mesonotum microtrichia: (0) absent; (1) in all the tergite.
62. Mesonotum sculpture pattern: (0) striate; (1) reticulate-striate; (2) reticulate.
63. Mesonotum sculpture: (0) posterior half; (1) posterior three-quarters; (2) complete.
64. Mesonotum: (0) entire; (1) divided; (2) posterior half divided.

- 65.** Metanotum sculpture pattern: (0) striate; (1) reticulate-striate; (2) reticulate. *Lenkothrips* and some *Heterothrips* species have a striate pattern, while *Aulacothrips* and *Scutothrips* have a strongly reticulate metascutum (Figs. 16–17).
- 66.** Metanotum sculpture pattern: (0) sculpture simple; (1) form a central triangle.
- 67.** Metanotum sculpture pattern: (0) longitudinal; (1) arcuate; (2) horizontal; (3) simple; (4) concentric; (5) horizontal on anterior third, posterior longitudinal. Most *Heterothrips* species show a pattern of concentric lines of sculpture on the metascutum (Figs. 18–19).
- 68.** Metanotum sculpture internal marks: (0) absent; (1) lines.
- 69.** Metanotum setae: (0) 1 anterior, 1 posterior pair; (1) 2 anterior pairs; (2) 1 anterior pair; (3) 2 anterior pairs, one in the anterior margin the other slightly behind.
- 70.** Campaniform sensila / posterior metanotal setae relative position: (0) sensila in front of posterior setae; (1) aligned; (2) sensila behind posterior setae; (3) sensila absent.
- 71.** Metanotum anterior setae position: (0) central-lateral; (1) lateral.
- 72.** Metanotum microtrichia: (0) absent; (1) median; (2) outside central triangle; (3) complete.
The metascutum is sculpted and covered with microtrichia in all genera of Heterothripidae.
- 73.** Metanotum shape: (0) central elevated triangle; (1) uniform. The sculpture can form a central triangle which is flat in some *Heterothrips* and *Lenkothrips* species (Figs. 18–19) or prominent as in *Aulacothrips* and *Scutothrips* species (Figs. 16–17).
- 74.** Metapleura ornamentation*: (0) with polygonal reticulation; (1) with irregular and elongated reticles; (2) irregular lines of reticulation; (3) irregular lines of reticulation and internal marks; (4) striation longitudinal; (5) no reticulation.
- 75.** Metapleura ornamentation*: (0) without microtrichia; (1) with microtrichia.
- 76.** Metasternal furca: (0) not developed; (1) don't reach the median line of metasternum; (2) touch median line of metasternum; (3) pass the median line of metasternum; (4) touch the mesosternum.
- 77.** Abdominal segments coloration: (0) dark; (1) bicolor.
- 78.** Distance between hind coxae*: (0) widely separated; (1) closely separated. The bases of the hind coxae (Fig. 20) are widely separated in species of *Aulacothrips*. In the remaining Heterothripidae, the bases of the hind coxae are close together (Fig. 21).
- 79.** Legs coloration: (0) dark; (1) bicolor; (2) pale.

- 80.** Trichobotria on abdominal tergite X: (0) absent; (1) similar to a setae base; (2) bigger than a setae base.
- 81.** Tergite X*: (0) entire; (1) divided; (2) posterior half divided.
- 82.** Abdominal sternite VII microtrichia: (0) present; (1) absent.
- 83.** Layout of discal setae on abdominal sternites IV-V: (0) absent; (1) lateral; (2) continuous.
- 84.** Layout of discal setae on abdominal sternites IV-V in females: (0) in one line; (1) disperse.
- 85.** Layout of discal setae on abdominal sternites IV-V in males: (0) in one line; (1) disperse; (2) absent.
- 86.** Female sternite VII marginal setae number: (0) 3; (1) 4; (2) 5; (3) 6; (4) 7.
- 87.** Male sternite VII marginal setae number: (0) 3; (1) 4; (2) 5.
- 88.** Supernumeraries setae on abdominal sternite VII in females: (0) present; (1) absent.
- 89.** Supernumeraries setae on abdominal sternite VII in females: (0) smaller than marginal setae; (1) similar to marginal setae.
- 90.** Supernumeraries setae on abdominal sternite VII in females: (0) aligned with marginal setae; (1) anterior to marginal setae; (2) one anterior to marginal setae the other aligned with.
- 91.** Marginal setae position on female abdominal sternite VII: (0) next to the posterior margin; (1) one lateral pair not marginal; (2) two lateral pair not marginal; (3) not marginal.
- 92.** Marginal setae position on male abdominal sternite VII: (0) next to the posterior margin; (1) one lateral pair not marginal; (2) not marginal.
- 93.** Female sternite VII marginal setae: (0) all setae similar; (1) median setae more developed than lateral setae; (2) lateral setae more developed than median setae.
- 94.** Sensoria on abdominal sternite VII: (0) in front of the anteromarginal ridge; (1) in the anteromarginal ridge; (2) behind the anteromarginal ridge.
- 95.** Female abdominal sternite VIII: (0) reduced to lobes on the posterior margin of sternite VII; (1) completely reduced.
- 96.** Abdominal sternites posteromarginal comb of microtrichia / craspeda : (0) absent; (1) lateral block; (2) continuous block; (3) continuous scalloped block; (4) continuous regular comb of microtrichia; (5) continuous scalloped blocks with central teeth.
- 97.** Microtrichia abdominal tergite I: (0) absent; (1) median posterior half; (2) lateral and posterior half; (3) lateral.

- 98.** Microtrichia abdominal tergite II –VI: (0) absent; (1) lateral; (2) complete; (3) central; (4) median and lateral; (5) lateral and anterior half.
- 99.** Microtrichia abdominal tergites VII–VIII: (0) absent; (1) VII lateral and median, VIII complete; (2) VII lateral VIII complete; (3) lateral; (4) complete; (5) anterior half and lateral; (6) median.
- 100.** Abdominal tergites posterior margin: (0) microtrichia; (1) craspeda. A comb of microtrichia is present on the posterior margin of the abdominal tergites in *Lenkothrips* and some *Heterothrips* taxa. A craspeda is present on the posterior margin of the abdominal tergites in *Aulacothrips* (Fig. 23) and *Scutothrips* (Fig. 22), and some *Heterothrips* species (Fig. 24).
- 101.** Abdominal sternites posteromarginal craspeda: (0) with microtrichia; (1) without microtrichia.
- 102.** Tergite I posteromarginal craspeda without microtrichia: (0) lateral; (1) continuous.
- 103.** Tergite II-V posteromarginal craspeda without microtrichia: (0) continuous lateral craspeda central teeth; (1) continuous craspeda; (2) central craspeda, lateral microtrichia teeth. The craspeda in Heterothripidae can be entire or subdivided and extend across the margin of the tergites or be present only on the sides (Figs. 22–24). The craspeda can be combined with a few central microtrichal teeth (Fig. 24).
- 104.** Tergite VI-VII posteromarginal craspeda without microtrichia: (0) continuous lateral craspeda central microtrichia teeth; (1) continuous; (2) center craspeda, lateral with microtrichia teeth.
- 105.** Tergite I craspeda with microtrichia: (0) lateral block; (1) lateral scalloped block; (2) lateral; (3) continuous scalloped block; (4) lateral block, central microtrichia teeth.
- 106.** Tergite II-V craspeda with microtrichia: (0) lateral block central teeth; (1) lateral scalloped blocks/central teeth; (2) lateral block, central teeth; (3) continuous block.
- 107.** Tergite VI-VII craspeda with microtrichia: (0) continuous lateral block central teeth; (1) continuous lateral scalloped block central teeth; (2) continuous block.
- 108.** Abdominal tergite I posteromarginal comb of microtrichia: (0) lateral; (1) lateral and central.
- 109.** Abdominal tergite II–V posteromarginal comb of microtrichia: (0) lateral; (1) lateral and central; (2) continuous. In Heterothripidae the comb of microtrichia can be restricted to the lateral parts of the abdominal tergites and can also display a few teeth on the middle of the

tergite (Fig. 25). In general, the distribution of the microtrichia varies, depending on the species and the abdominal segment.

- 110.** Abdominal tergite VI–VII posteromarginal comb of microtrichia: (0) VI lateral VII continuous; (1) VI lateral and central teeth VII continuous; (2) continuous; (3) VI lateral VII lateral and central; (4) lateral and central.
- 111.** Forewing shape: (0) long almost parallel; (1) narrow without crossveins; (2) broad crossveins; (3) broad base. The forewings have a base that is wider than the width of the remainder of the forewing in all Heterothripidae taxa, but this condition is extreme in *Aulacothrips* species where the apex of the wing is about four times thinner than the base of the wing.
- 112.** Forewing coloration: (0) 1; (1) 2; (2) 3; (3) pale; (4) uniformly colored.
- 113.** Forewing coloration: (0) bands; (1) spots; (2) bands and spots.
- 114.** Forewing: (0) longitudinal veins; (1) crossveins.
- 115.** Forewing bands: (0) transversal; (1) longitudinal; (2) circular / oval.
- 116.** Ovipositor: (0) curved down; (1) curved up.
- 117.** Male terminalia: (0) simple; (1) with hooks and spines.
- 118.** Male pore plates on abdominal sternites: (0) absent; (1) present.
- 119.** Shape male pore plates on abdominal sternites: (0) oval; (1) circular; (2) elongated transversally.
- 120.** Male pore plates on abdominal sternites presence: (0) on tergite VII; (1) on tergites VII–VIII; (2) on tergites IV–VIII; (3) on tergites III–VIII; (4) on tergites VI–VIII; (5) on tergites V–VIII; (6) on tergites III–VII. Most *Heterothrips* males possess circular to oval pore plates on the abdominal tergites. These structures are also present in the males of *Scutothrips* (Fig. 26), *Aulacothrips*, and some *Lenkothrips*. The shape and number of the pore plates on the abdomen is variable between and within the different genera.
- 121.** Female abdominal tip shape: (0) conical; (1) tubular.
- 122.** Male abdominal tip shape: (0) conical; (1) tubular.

Supplementary material 3

Data matrix

&[cont]

Microcephalothrips abdominalis	0.469-0.611	0.344-0.624	0.394-0.664	0.185-0.214	0.045-0.046	?	0.556-0.676	0.091-0.214	0.108-0.570	0.103-0.271	0.400-0.632	0.332-0.461	0.105-0.127	0.183	
Heterothrips angusticeps	0.569-0.590	0.604-0.686	0.364-0.458	0.416-0.471	0.109-0.123	0.129-0.168	0.581-0.751	0.153-0.206	0.737-0.928	0.170-0.210	0.266-0.336	0.380-0.489	0.333-0.444	0.207	
Heterothrips bicolor	0.434	0.460	0.294	0.326	0.107	0.168	0.500	0.266	0.628	?	0.183	0.389	0.464	?	
Heterothrips brasiliensis	0.301-0.434	0.460-0.580	0.400-0.558	0.341-0.487	0.127-0.145	0.147-0.173	0.371-0.461	0.119-0.180	0.641-0.743	0.066-0.094	0.102-0.183	0.418-0.516	0.340-0.366	0.153	
Heterothrips condei	0.301-0.434	0.357-0.522	0.323-0.441	0.287-0.395	0.083-0.110	0.153-0.260	0.456-0.576	0.129-0.194	0.573-0.778	0.173	0.142-0.258	0.383-0.484	0.357-0.400	0.123	
Heterothrips decacornis	0.252-0.511	0.331-0.409	0.205-0.500	0.411-0.538	0.145-0.209	0.064-0.148	0.313-0.418	0.122-0.164	0.544-0.750	0.171-0.208	0.163-0.285	0.379-0.562	0.396-0.442	0.106-0.158	
Heterothrips decoratus	0.462-0.616	0.434-0.586	0.288-0.417	0.351-0.428	0.087-0.102	0.112-0.133	0.296-0.501	0.211-0.297	0.526-0.847	0.159-0.165	0.283-0.369	0.423-0.511	0.449-0.560	0.000-0.120	
Heterothrips flavitibia	0.434-0.461	0.260-0.280	0.294-0.411	0.224-0.546	0.074-0.126	0.057-0.126	0.350-0.383	0.152-0.183	0.653	0.171-0.182	0.074-0.319	0.372-0.420	0.550-0.570	?	
Heterothrips gillettei	0.355-0.461	0.350-0.610	0.352-0.470	0.263-0.351	0.082-0.100	0.149	0.283-0.383	0.073-0.152	0.339-0.852	0.142-0.146	0.353	0.389	0.000-0.071	0.132	
Heterothrips marginatus	0.446-0.500	0.460-0.580	0.294-0.529	0.282-0.360	0.066-0.079	0.160-0.229	0.465-0.633	0.152-0.220	0.641-0.794	0.146	0.279-0.415	0.233-0.396	0.369-0.409	0.123	
Heterothrips myrceugenellae	0.382-0.434	0.320-0.420	0.529	0.165-0.263	0.037-0.055	0.088-0.225	0.281-0.416	0.253-0.339	0.557-0.723	0.206	0.170-0.347	0.389	0.308	?	
Heterothrips moestus	0.382-0.434	0.290-0.330	0.352-0.470	0.263-0.341	0.101	0.256-0.302	0.515-0.583	0.159-0.207	0.487-0.538	0.118-0.188	0.203-0.258	0.305-0.426	0.318-0.399	?	
Heterothrips ornatus	0.342-0.474	0.340-0.420	0.352-0.470	0.306-0.414	0.094-0.107	0.084-0.107	0.433-0.600	0.201-0.318	0.628-0.820	0.173	0.258-0.339	0.308-0.396	0.474-0.565	?	
Heterothrips spinosus	0.275-0.355	0.320-0.440	0.411-0.529	0.365-0.395	0.084-0.096	0.198-0.252	0.383-0.483	0.262-0.372	0.583-0.711	0.157-0.164	0.265-0.456	0.403-0.497	0.247-0.389	0.036-0.114	
Heterothrips striatus	0.250-0.407	0.380-0.460	0.411-0.764	0.326-0.424	0.096-0.111	0.073-0.149	0.331-0.500	0.162-0.211	0.467-0.647	0.157-0.186	0.136-0.272	0.318-0.406	0.338-0.439	0.108-0.156	
Heterothrips varitibia	0.433-0.513	0.450-0.570	0.529-0.647	0.356-0.473	0.074-0.170	0.160-0.199	0.350-0.383	0.177	0.723-0.826	0.160-0.193	0.176-0.462	0.366	?	0.123-0.147	
Heterothrips aesculi	0.329-0.487	0.360-0.480	0.229-0.464	0.331-0.429	0.087-0.148	0.095-0.134	0.366-0.600	0.146-0.201	0.493-0.801	0.170-0.210	0.279-0.388	0.328-0.484	0.232-0.333	0.126-0.156	
Heterothrips analis	0.329-0.434	0.360-0.519	0.411-0.641	0.307-0.453	0.064-0.101	0.221-0.298	0.465-0.633	0.122-0.195	0.570-0.723	0.168-0.215	0.224-0.347	0.359-0.508	0.308-0.399	0.105-0.165	
Heterothrips arisaemae	0.355-0.434	0.320-0.570	0.294-0.529	0.287-0.804	0.137-0.169	0.118-0.134	0.400-0.500	0.134-0.189	0.499-0.666	0.180-0.206	0.176-0.408	0.406-0.427	0.257-0.298	?	
Heterothrips auranticornis	0.368-0.527	0.390-0.450	0.464-0.588	0.297-0.346	0.082-0.092	0.145-0.199	0.366-0.466	0.161-0.204	0.531-0.673	0.124-0.160	0.422	0.118-0.606	0.303-0.414	0.105-0.135	
Heterothrips azaleae	0.303-0.540	0.310-0.530	0.352-0.470	0.341-0.409	0.102-0.144	0.103-0.134	0.266-0.600	0.146-0.177	0.499-0.666	0.177-0.239	0.292-0.469	0.349-0.572	0.278-0.308	0.159-0.177	
Heterothrips cacti	0.395-0.474	0.390-0.549	0.352-0.470	0.316-0.414	0.093-0.126	0.092-0.191	0.383-0.550	0.198-0.272	0.461-0.576	0.175-0.226	0.211-0.292	0.403-0.518	0.268-0.348	0.066-0.102	
Heterothrips clusiae	0.368-0.447	0.330-0.570	0.411-0.641	0.326-0.365	0.089-0.101	0.118-0.218	0.531-0.633	0.149-0.204	0.518-0.660	0.180-0.210	0.258-0.285	0.345-0.454	0.343-0.384	0.081-0.159	
Heterothrips cuernavacae	0.408-0.777	0.419-0.520	0.529-0.647	0.229-0.346	0.063-0.082	0.168	0.366-0.466	0.165	0.358-1.000	0.135-0.263	0.292	0.277	0.384	0.153-0.189	
Heterothrips fimbriatus	0.316-0.421	0.130-0.350	0.235-0.352	0.453-0.541	0.219-0.227	0.057-0.065	0.383-0.483	0.131-0.149	0.519-0.865	?	0.156-0.224	0.328-0.600	0.520-0.570	?	
Heterothrips flavicornis	0.316-0.447	0.309-0.390	0.176-0.411	0.356-0.424	0.120-0.150	0.096-0.141	0.300-0.366	0.091-0.128	0.532-0.685	0.159-0.195	0.292-0.428	0.406-0.474	0.262-0.374	0.129-0.159	
Heterothrips flavicuris	0.368-0.421	0.350-0.490	0.176-0.411	0.326-0.404	0.107-0.129	0.099-0.122	0.283-0.583	0.131-0.180	0.563-0.743	0.164-0.168	0.170-0.224	0.386-0.474	0.384-0.464	0.105-0.117	
Heterothrips flavidus	0.355-0.513	0.460-0.480	0.294-0.411	0.268-0.356	0.089-0.112	0.035-0.103	0.766	0.238	0.705	?	0.258-0.339	0.366	0.328-0.409	?	
Heterothrips lasquerellae	0.275-0.408	0.380-0.460	0.294-0.529	0.360-0.448	0.105-0.123	0.160-0.244	0.383-0.550	0.137-0.198	0.564-0.794	0.162-0.199	0.258-0.339	0.349-0.511	0.056-0.217	0.123-0.159	
Heterothrips lyoniae	0.380-0.436	0.360-0.480	0.211-0.376	0.390-0.468	0.141-0.163	0.086-0.139	0.383-0.550	0.121-0.172	0.628-0.794	0.158-0.185	0.292-0.388	0.216-0.345	0.257-0.409	0.072-0.168	
Heterothrips mexicanus	0.395-0.474	0.320-0.540	0.417-0.541	0.336-0.482	0.088-0.133	0.121-0.200	0.250-0.448	0.133-0.243	0.557	0.193-0.219	0.346-0.428	0.349-0.396	0.348-0.379	0.132	
Heterothrips miconiae	0.379-0.490	0.450-0.570	0.458-0.594	0.393-0.455	0.078-0.098	0.141-0.279	0.316-0.515	0.146-0.220	0.551-0.884	0.171-0.230	0.394-0.490	0.464-0.600	0.257-0.288	0.183-0.201	
Heterothrips minor	0.316	0.430	0.294	0.326	0.087	0.134	0.316	0.211	0.705	0.148	0.211	0.389	0.374	?	
Heterothrips pubescens	0.395-0.421	0.230-0.290	0.235-0.352	0.468-0.760	0.165-0.183	0.057-0.103	0.531-0.566	0.073	0.641-0.846	?	0.299-0.381	0.277-0.386	0.394-0.414	?	
Heterothrips pectinifer	0.350-0.413	0.378-0.482	0.352-0.588	0.351-0.448	0.102-0.126	0.144-0.207	0.298-0.400	0.162-0.247	0.448-0.615	0.178-0.215	0.296-0.425	0.348-0.458	0.343-0.404	0.105-0.165	
Heterothrips prosopididis	0.355-0.434	0.380-0.480	0.347-0.476	0.384-0.434	0.119-0.146	0.107-0.176	0.266-0.400	0.131-0.198	0.512-0.846	0.193-0.215	0.305-0.375	0.399-0.494	0.281-0.325	0.125-0.175	
Heterothrips quercicola	0.276-0.329	0.320-0.400	0.117-0.229	0.407-0.440	0.092-0.117	0.106-0.138	0.433-0.566	0.128-0.177	0.583-0.865	0.201-0.241	0.121-0.232	0.311-0.392	0.298-0.358	0.147-0.189	
Heterothrips sericatus	0.262-0.395	0.330-0.510	0.405-0.535	0.307-0.443	0.076-0.101	0.197-0.268	0.475-0.591	0.157-0.215	0.544-0.762	0.168-0.197	0.156-0.211	0.359-0.467	0.424-0.495	0.140-0.196	
Heterothrips salicis	0.434-0.487	0.270-0.470	0.352	0.390-0.487	0.105-0.126	0.038-0.160	0.131-0.600	0.183	0.563-0.641	0.179	0.257-0.328	0.294	0.307-0.319	?	
Heterothrips trinidadensis	0.382-0.461	0.490-0.570	0.229-0.464	0.351-0.390	0.111-0.124	0.065-0.118	0.265-0.433	0.128-0.171	0.691-0.832	0.171-0.208	0.238-0.319	0.444-0.559	0.348-0.449	0.150	
Heterothrips vernus	0.326-0.411	0.299-0.400	0.211-0.376	0.365-0.444	0.089-0.097	0.107-0.130	0.448-0.585	0.115-0.159	0.544-0.891	0.202-0.228	0.206-0.282	0.328-0.457	0.237-0.379	0.138-0.180	
Heterothrips vitis	0.256-0.374	0.320-0.480	0.229-0.464	0.326-0.395	0.085-0.113	0.213-0.275	0.350-0.483	0.151-0.184	0.544-0.737	0.178-0.223	0.053-0.394	0.406-0.488	0.283-0.384	0.111-0.177	
Heterothrips watsoni	0.355-0.540	0.340-0.520	0.294-0.529	0.258-0.356	0.128-0.151	0.091-0.122	0.266-0.498	0.116-0.189	0.467-0.710	0.171-0.241	0.217-0.285	0.376-0.532	0.197-0.369	0.146-0.154	
Heterothrips xolismae	0.351-0.438	0.340-0.539	0.205-0.264	0.375-0.473	0.166-0.175	0.067-0.116	0.331-0.400	0.148-0.205	0.458-0.592	0.175-0.230	0.279-0.360	0.298-0.359	0.363-0.434	?	
Scutothrips peruvianus	0.380-0.515	0.089-0.350	0.282-0.423	0.400-0.536	0.126-0.174	0.053-0.093	0.316-0.515	0.057-0.071	0.534-0.726	0.180-0.214	0.023-0.093	0.362	0.569-0.684	0.500-0.702	0.083-0.138
Aulacothrips amazonicus	0.527	0.525	0.200	?	?	?	0.333	0.155	0.314	0.164	?	0.620	0.419	?	
Aulacothrips dictyotus	0.500-0.658	0.669-0.770	0.052-0.294	0.034-0.111	0.649-0.930	0.046-0.191	0.400-0.666	0.064-0.100	0.224-0.442	0.173-0.206	0.326-0.544	0.606-0.877	0.449-0.681	0.057-0.099	
Aulacothrips minor	0.487-0.566	0.460-0.660	0.000-0.235	0.038-0.087	0.704-0.999	0.077-0.153	0.298-0.400	0.073-0.085	0.301-0.569	0.204-0.270	0.422-0.803	0.681-1.000	0.656-0.717	0.048-0.090	
Heterothrips paulistarum_Itirapina	0.342-0.421	0.270-0.310	0.411-0.529	0.287-0.443	0.107-0.128	0.073-0.111	0.315-0.450	0.127-0.140	0.685	0.199-0.206	0.253	0.250-0.372	0.372-0.436	?	
Heterothrips paulistarum_Campinas	?	?	?	0.439	0.119	?	?	?	?	?	?	?	?	?	
Heterothrips paulistarum_Campinas2	0.275-0.382	0.238-0.400	0.411-0.529	0.287-0.492	0.090-0.129	0.069-0.123	0.326-0.471	0.183-0.250	0.512-0.897	0.159-0.217	0.211-0.224	0.342-0.545	0.247-0.581	?	
Heterothrips sp_Porto Alegre	0.303	0.340	0.411	0.400	0.112	0.088	0.466	0.287	0.730	0.237	0.292	0.325	0.545	?	
Heterothrips savanicus	0.288-0.395	0.319-0.501	0.664-0.588	0.292-0.370	0.066-0.091	0.160-0.214	0.391-0.541	0.136-0.218	0.474-0.974	0.133-0.228	0.215-0.302	0.315-0.471	0.176-0.338	?	
Heterothrips pedicellatus	0.301-0.434	0.244-0.414	0.170-0.417	0.355-0.444	0.140-0.163	0.000-0.070	0.398-0.535	0.036-0.116	0.538-0.820	0.164-0.230	0.149-0.299	0.410-0.681	0.166-0.328	?	

Heterothrips obscurus 0.342-0.368 0.290-0.310 0.352 0.263-0.360 0.180-0.202 0.011-0.065 0.426-0.473 0.113 0.326-0.711 0.164-0.230 0.162-0.205 0.182-0.455 0.149-0.528 ?
 Heterothrips sp.2 0.288-0.368 0.250-0.350 0.411-0.641 0.273-0.370 0.058-0.079 0.309-0.370 0.250-0.316 0.107-0.155 0.764-0.969 0.162-0.235 0.238-0.347 0.400-0.562 0.232-0.343 ?
 Heterothrips lewisi 0.210 0.310 0.411 ? ? ? 0.316 0.116 0.750 0.210 ? 0.481 0.424 ?
 Heterothrips sp 0.355 0.290 0.529 0.521 0.185 0.134 0.333 0.088 0.730 0.190 0.388 0.437 ? 0.204
 Heterothrips stellae 0.339-0.476 0.399-0.540 0.529-0.647 0.354-0.396 0.075-0.087 0.107-0.153 0.276-0.455 0.146-0.238 0.467-0.647 0.131-0.204 0.333-0.374 0.359-0.562 0.439-0.480 0.183
 Heterothrips pilarae 0.258-0.399 0.320-0.559 0.229-0.464 0.380-0.448 0.080-0.101 0.363-0.431 0.433-0.533 0.160-0.200 0.442-0.570 0.140-0.265 0.211-0.265 0.387-0.530 0.222-0.262 0.177-0.219
 Heterothrips australis_Porto Alegre 0.237-0.420 0.329-0.391 0.276-0.429 0.219-0.307 0.061-0.076 0.107-0.168 0.416-0.516 0.134-0.189 0.384-0.576 0.146-0.204 0.285-0.381 0.393-0.542 0.343-0.575 0.105
 Heterothrips australis_Alto Paraiso 0.243-0.387 0.340-0.420 0.352-0.470 0.262-0.293 0.057-0.078 0.140-0.173 0.396-0.536 0.171-0.226 0.518-0.660 0.145-0.165 0.394 0.216-0.488 0.363-0.484 ?
 Heterothrips sp3 0.301-0.329 0.330-0.350 0.411 0.395-0.434 0.111-0.112 0.084-0.099 0.376-0.490 0.125-0.314 0.602-0.756 0.237 0.292 0.325 0.545 ?
 Scutothrips nudus_Itirapina 0.353-0.463 0.280-0.300 0.176-0.411 0.504-0.587 0.213-0.214 0.057-0.096 0.266-0.366 ? 0.685 0.237 0.149-0.204 0.786 0.407-0.421 ?
 Scutothrips nudus_Campinas 0.408-0.513 0.219-0.301 0.294-0.411 0.482-0.580 0.180-0.228 0.050-0.073 0.228-0.338 0.061 0.593-0.714 0.204-0.252 0.242-0.329 0.501-0.657 0.409-0.490 0.084
 Lenkothrips sensivus? 0.288-0.368 0.380-0.539 0.117-0.370 0.224-0.253 0.231-0.317 0.102-0.119 0.431-0.666 0.000-0.177 0.564-0.833 0.138-0.212 0.108-0.231 0.454-0.745 0.096-0.247 ?
 Lenkothrips daedali 0.355-0.434 0.440-0.540 0.464-0.588 0.189-1.000 0.135-0.186 0.090-0.192 0.498-0.666 0.116-0.164 0.530-0.584 0.237 0.095 0.464-0.505 0.278 0.102
 Lenkothrips kaminskii 0.171-0.329 0.349-0.431 0.294-0.411 0.229-0.278 0.185-0.264 0.107-0.191 0.400-0.466 0.116-0.177 0.525-0.679 0.221-0.250 0.098-0.214 0.418-0.483 0.242-0.303 0.117
 Lenkothrips guaraniticus 0.276 0.371 0.352 0.243 0.252 0.130 0.333 0.128 0.778 0.210 0.272 0.474 0.232 ?
 Dorythrips moundi 0.263 0.560 0.235 0.239 0.065 0.099 0.200 0.238 0.346 0.237 0.129 ? ? ?
 Dactuliothrips kaszabi 0.275-0.408 0.604-0.863 0.235-0.352 0.000-0.243 0.000-0.046 0.042-0.103 0.000-0.200 0.430-0.730 0.363-0.459 0.175-0.277 0.272-0.653 0.044-0.098 0.126-0.540 0.300-0.534
 Dactuliothrips prosopis 0.172-0.309 0.600-0.700 0.117-0.229 0.180-0.229 0.027-0.042 0.049-0.089 0.150-0.183 0.653-0.844 0.339-0.430 0.173-0.188 0.211-0.415 ? 0.147-0.238 ?
 Dactuliothrips boharti 0.237-0.393 0.706-0.854 0.052-0.294 0.097-0.165 0.016-0.038 0.061-0.099 0.100-0.166 0.902-1.000 0.407-0.720 0.142-0.234 0.292-0.401 0.000-0.115 0.262-0.414 0.777-1.000
 Erythrothrips gemmatus 0.553-0.632 0.700-0.860 0.411-0.764 0.174-0.254 0.058-0.109 0.282-0.389 0.400-0.698 0.159-0.220 0.269-0.448 0.416-0.679 0.000-0.176 0.271-0.569 0.484-0.606 0.414-0.534
 Erythrothrips arizonae 0.457-0.621 0.819-1.000 0.882-1.000 0.182-0.245 0.057-0.080 0.305-0.572 0.316-0.650 0.217-0.308 0.288-0.429 0.733-1.000 0.109-0.245 0.437-0.620 0.686-1.000 0.330-0.552
 Frankliniothrips vespiformis 0.604-1.000 0.370-0.670 ? 0.356-0.482 0.112-0.199 0.687-0.999 0.631-0.868 0.238-0.336 0.455-0.801 0.365-0.460 0.742-0.999 0.416-0.538 0.278-0.338 0.429-0.861
 Stomatothrips flavus 0.694-0.886 0.490-0.649 0.452-0.952 0.208-0.298 0.078-0.109 0.344-0.480 0.533-0.800 0.302-0.363 0.000-0.397 0.422-0.751 0.306-0.510 0.383-0.694 0.257-0.419 0.753
 Aeolothrips duvali 0.434-0.777 0.580-0.760 0.576-0.829 0.234-0.331 0.054-0.072 0.180-0.210 0.375-0.691 0.143-0.290 0.262-0.403 0.329-0.544 0.061-0.292 0.393-0.583 0.490-0.621 0.438-0.492
 Aeolothrips kuwanaii 0.316 0.520 0.235 0.268 0.073 0.294 0.716 0.342 0.262 0.553 0.142 0.389 0.803 ?
 Aeolothrips intermedium 0.408-0.724 0.459-0.501 1.000 0.121-0.346 0.025-0.125 0.172-0.202 0.433-1.000 0.183-0.207 0.307-0.358 0.484-0.539 0.081-0.285 0.325-0.515 0.454 0.378
 Desmothrips broomei 0.524-0.765 0.381-0.579 0.547-0.629 0.157-0.164 0.063-0.069 0.123-0.160 0.435-0.598 0.183 0.173 0.343-0.383 0.143-0.277 0.527-0.570 0.424-0.535 ?
 Hydatothrips sp 0.276 ? ? 0.078 0.017 ? ? ? 0.250 0.117 ? ? 0.535 ?
 Bregmatothrips venustus 0.631-0.685 0.780-0.840 0.588-0.705 0.193-0.225 0.026-0.031 ? 0.165-0.266 0.908-0.963 0.429 0.100-0.115 0.646 ? 0.484-0.606 ?
 Heliothrips haemorrhoidalis_Brazil 0.179-0.241 0.559-0.580 ? 0.307 0.077 ? 0.246-0.353 0.113 0.153-0.269 0.237 0.565-0.932 0.267 0.404-0.414 ?
 Heliothrips haemorrhoidalis_USA 0.210-0.289 0.550 ? ? ? 0.166-0.333 0.085-0.159 0.089-0.217 0.237 0.388-0.605 0.067-0.244 0.252-0.424 ?
 Dendrothrips ornatus 0.276 0.130 ? ? ? ? 0.350 0.128 0.237 0.643 0.653 0.572 0.106 ?
 Halmathrips sp 0.131 0.000 ? ? ? ? 0.700 0.165 0.173 0.000 ? ? 0.303 ?
 Halmathrips sp 0.011-0.119 0.190 ? 0.141-0.190 0.015-0.035 0.313-0.359 0.643-0.790 0.418 0.153-0.307 ? 0.422 0.491-0.572 0.323-0.333 ?
 Scirtothrips sp 0.592 ? 0.294 ? ? ? 0.441 0.113 0.173 0.118 0.673 0.294 0.485 ?
 Arorathrips xanthius 0.342 0.750 ? 0.180 0.034 ? 0.383 ? 0.173 0.127 0.279 0.220 0.035 ?
 Bradinothrips williamsi 0.289 0.430 ? ? ? ? 0.433 0.470 0.230 0.173 0.306 ? 0.252 ?
 Echinothrips selaginellae 0.250 0.520 ? ? ? ? 0.383 0.223 0.089 0.074 0.422 ? 0.313 ?
 Selenothrips rubrocinctus 0.000-0.105 0.336-0.464 ? 0.082 0.065 ? 0.183-0.383 0.428-0.599 0.214-0.323 0.102 0.390-0.703 0.000-0.067 0.040-0.535 ?
 Helionothrips funebris 0.158 0.360 ? 0.209 0.074 ? 0.500 0.207 0.410 0.188 0.646 0.220 0.323 ?
 Elixothrips brevisetis 0.355 0.330 ? ? ? ? 0.150 ? 0.217 ? ? ? 0.111 ?
 Neohydatothrips sp. 0.276 0.140 0.000 0.136 0.056 ? 0.300 0.324 0.217 0.085 0.340 0.230 0.268 ?
 Frankliniella sp. 0.421 0.380 0.411 0.214 0.058 ? 0.350 0.565 0.243 0.043 0.197 ? 0.086 ?
 Heterothrips sp.1 0.249-0.382 0.230-0.310 0.294-0.41 ? ? ? 0.316-0.583 0.241 0.474-0.871 0.157-0.164 0.326 0.192-0.376 0.212-0.323 ?
 Caliothrips phaseoli 0.250 0.360 ? ? ? ? 0.433 0.327 ? 0.091 0.714 0.189 ? 0.209
 Thrips sp. 0.579 0.450 0.352 ? ? ? 0.316 0.455 0.262 0.053 ? ? 0.262 ?
 Chilothrips sp. 0.553 0.430 0.376 0.104 0.016 ? 0.283 ? 0.346 ? 0.299 ? 0.068 ?

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Heterothrips cuernavacae 1?00[01]001?01??20020012200110201?000?11100021212001201?400?131??20110?0102111??321?1?2140??????234?0?0012200
Heterothrips fimbriatus 12043401?01??20221012200110201?001011100002121100120104002131??20110?020??1??3?1?122110??111??300000????0?
Heterothrips flavicornis ?00?4501?0[01]??20221012200110201000101210002121200120104001131002011020202211??32101224110??000??300100010300
Heterothrips flavicurris 12063301?01??202201122001102010000111000021212000201040001311120110200??2211??3201142110??????012300000012110
Heterothrips flavus 12031001?00??20220112200?10201?0000110000212120012010400[01]131??20110?00??1?1??3?1?142120??????[01]234?0?0??0?
Heterothrips lasqueirellae 12013301?01??20220012200110201000101100002121200120114001131002011020202211??321[01]1324110??111??300000012310
Heterothrips lyoniae 12004001?01??20220012200110201000101110002121100120214001131002011020202211??32101321110????11??300000012310
Heterothrips mexicanus 120[014]02[01]0?0[01]??20220012200110201?001?1200002121100120114000131??20110?021?1?1??3?111121210??111??30000001031?
Heterothrips miconiae 12002001?00??2022001220011020100000110000212110012010400[01]131112011020202211??3211142410??????11131110000??10
Heterothrips minor 12003301??1??20220112200110201?000?11?0002??12?010201400[01]131??20110?00??2?1??3?11143120??????001100000????0?
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Heterothrips pectinifer 12004001?01??20220012100110201000101120002121100120114000131002011020202211??32101521110????11??300000012310
Heterothrips prosopidis 12004[23]01?01??2022001220011020100010112000212120012010400[01]131002011020202211??32101324110????111??300000010310
Heterothrips quercicola 12014001?00??202200122001102010001011000021212001201040011310020110200??2211??32101?21110????11??300000010200
Heterothrips sericatus 12014501?00??20221012100110201000011000202121200020004000131112011020202[34][12]1??3211142120??????01234?0?000?00
Heterothrips salicis 1300?001?0??20221012200?10201?001?12?0002121000[12]201?400[01]131??20110??20?1?1??3?1?1311210??111??100?00????0?
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Heterothrips vitis 12004501?0[01]??20220012200110201000001100002121100120104000131112011020102211??3210142410??????01230010010??10
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Scutothrips peruvianus 10004001?01??20223012200110201000111300002121100120203001120002011020202211??32101221110????11??300100012310
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Aulacothrips dictyotus 10000001?30??20401001110010201?101022200101201002202030001200010000210????1??20?21?20711000??????34?0?001101?
Aulacothrips minor 10000001?30??20401001110010201?101022200121201002202030001200010000210??1?1??20021[01][03]3711000??????3[04]??0?1101?
Heterothrips paulistarum_Itirapina 12013401?01??20221112200110201?000111100021211000200040001311120110200??3?1??3?11142120??????112300100????0?
Heterothrips paulistarum_Campinas 12023401?01??2022??12100110201?000?1110002121100020004000131112011020????????????4?0?0????????30010?112??
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Heterothrips sp._Porto Alegre 12023401?00??20220112100110201000011100021212000200040011311121110200??11??3010142110??????012300100112100
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Heterothrips pilarae 1?004501?00??20?20012200010201?00??110000212?10012011400?1310020110?00??01??3?114?1?0??????12300?0001[01]300
Heterothrips australis_Porto Alegre 12004501?00??20220012200110201?000112000021212001201140001310020110200??3?1??3?101224110??032??34?1?0010310
Heterothrips australis_Alto Paraiso ?2003401?00??200200122001102010000112000020212001201140001310020110200??3?1??3?101234110??032??34?1?0????0?
Heterothrips sp.3 ?00?201?00??20220112200110201000011100021211000200040011311120120?00??2?1??3?1114?120??????02300100????1?
Scutothrips nudus_Itirapina 10004001?01??20223012200110201?00101300002121100220203001120002011020212121??32101213110????11??300100012210
Scutothrips nudus_Campinas 10004001?01??20223012200110201?0010130000212110022020300112000201102021?1?1??3?101213110????11??300100?1??10
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Lenkothrips kaminskii 12001201?20??201200122001102010000011000021212001200240001310020110200??2311??3211142120??????012300100010200
Lenkothrips guaraniticus ?2001001?20??20120012200110201?000011000021212001200240001310020110200??2?1??3?11142120??????012300100????0?
Dorythrips moundi 0?014401?0??00220022120012011?0001211000212?0?212011100?0111200?2?0200?0?????00????????????24?1?100??00
Dactuliothrips kaszabi 010142102????002002220012011?0101211100112010120111020011120102002120?010000220055??????????20010100?00

Dactuliothrips prosopis 010142102????0020022220012011?0101211000112020012011100001110201020021?0?0000?0120055????????????200101?????0
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Erythrothrips gemmatus 21013001?1?0000200010?02011110?0001111000112010012011100000100201010111000001111020000????????????21210100??21
Erythrothrips arizonae 20012001?1?000120002010201110?00011110001110[01]0012011100000100201000121100001111020000????????????20011100??11
Franklinothrips vespiformis 03054[23]01?1?001010001020000111?00101110000110[01]001000120030015021110010?1?10000211220000????????????22210100??0?
Stomatothrips flavus 01054401?1?0211210020200001110?0001111000112011002021300000100211010120020012201020000????????????21[02]10100??00
Aeolothrips duvali 01001001?1?010041002010101111?00011110001120[12]001202130000010020101010??11001201020000????????????22[02]10110??10
Aeolothrips kuwanaii 01013001?1?010041002020101111?00011120001120200120210000010020101010??1?0011?1020000????????????220011110??10
Aeolothrips intermedius 01013001?1?11004100202010111110000111000011202001202130000010020101010??1?0?0?21?0?0?0?20000????????????2201010??10
Desmothrips broomei 01013001?1?1211220011002011110000011100000112011012021310000111201010020?1?0101?0020000????????????212101?????0
Hydatothrips sp. 1?1541001????022?012210110201?00?0[01]00[12]1112?10002?01011?011012111000?22?0??0??4????????????3????0125?0
Bregmatothrips venustus 111145000????02300222101102010000001100021212001101120131011010110110??0?1?0?001000011111??????03?0?000?010
Heliiothrips haemorrhoidalis_Brazil ?01045000????010[12]11220011020100010120000000[12]002222030321000020120110?0?1?0?0?1203?1111?????3?010????1?
Heliiothrips haemorrhoidalis_USA ?01045000????01?[12]11220011020100010100000000[12]002222030321000020120110??0?1?0?0?1203011111?????3?010????1?
Dendrothrips ornatus 110045001????0321?1220?010201?0010120010200110012021013210110401100?0?0??0?0?1?130????????????????0??0?
Halmathrips sp. ?110?4001????022101110011020110010010030????0?100201101331013042110000?0?1?3?0?10?130?????????14????0??0?
Halmathrips sp. ?10200001????032102[12]2001102011001001003001002000201101331013041110000?0?1?3?2?100130????????03110000????0?
Scirtothrips sp. 1??2????????????00??00010201?00??1000[02]0212120002?1100130014021120000?1?1?0?0?1?313????????00?3??0??0?
Arorathrips xanthius 121545000????0200??200110201?00011100002000001201150331010002020100?0?1?0?001000011111?????04??0??0?
Bradinothrips williamsi 1100??[01]0[01]?????0?0122210110201?00112110020?2120012?2130331010020110010??1?1?3?0?1200011111??????????0??0?
Echinothrips selaginellae 1310??0?0??????0012220110201?00102200[02]001?120011?2130331011010110010??0?1?3?0?10000????????????04??0??0?
Selenothrips rubrocinctus ?01012[01]0[01]????0202122220010201?0010010000010100012[12]030321001040110010??1?1?3?0?100[03]611?11?????14?0?001030?
Helionothrips funebris 101312001????0223122100010201?00101200[12]0012020022?2131321010040110010??0?1?3?0?1200011111?????001020????1?
Elixothrips brevisetis ?[13]1045003??????3????011020?00010?200000?01?0221200000006030110110?0?1?3?12100001122??????022000????1?
Neohydatothrips sp. ??1220001????0220????101102012000?0[01]0010112?1000200151121010121110200?0?1?3?1?163440??????0220????0??0?
Frankliniella sp. ?21040001????0220021201102012000001100021200001202150121011020110210?0?1?0?0210000????????????000000????0?
Heterothrips sp.1 ?201?0?1?0??0?00122001102010000111000031212000200040011311120110?00?0?1?3?0?142140??????012300100????1?
Caliothrips phaseoli 111023?01????0220?22?00110201100101200[12]00021100220213133101004011001??2?01?0?0?1200011?22?????022000012600
Thrips sp. ?1?14????????????0122210110201?0001000000212120012001[02]03200110201101120?1?1?0?1010000????????????04?0?0??0?
Chilothrips sp. ?11000?01?????01?00?120011?20110000?11000212110012?21003210110?012011?????1?????1?0?????????1??????0??0?

&[dna]

Aeolothrips duvali
??GTCTATCTTTAAGAATATTAATTCGAATTACACTACGAAGAAACATAAAAAGTCTTAATTGATGATGATCAATTCTACAACCTCAGTTGTAACAGCTCACGC
CTTTGTAATAATTTTTTCACAGTTATACCAATTTAATCGGAGGGTTTGGAAAATTGATTAATTCATTAATACTAGGAGCTCCGTGATATGGCATTTCCTCGATTAAATAACATAAGGTTCTGACTTTTACCT
CCTTCACTGGCTTTGTTAATAGCAGGATTAGTTGTTGGTGAAGGGGCAGGAACAGGGTGAACCTGTGTACCCCACTTTGTCAACTTTCTATCATTCCTCTATTTCCGTAGATTTAACTATCTTTTCACTTCATT
TAGCGGGCATTTCCTCAATTCTAGGTGCAATTAACTTTATCAACAATAATTCATATAAACAAGGACTTAGGAAAAGAATTCATTCTCTTTTCGCCTGGTCCGTTCTAATTACAGCCATCCTTCTAC
TTCTATCTTTACCAGTCTTGTCTGGTGAATTACGATGTTGCTAACAGATCGAACTTAAATACAACCTTTTTTGATCCAAGAGGGGGGAGGAGACCCTATTTTATACCAACACTTATTT
Aeolothrips intermedius
????????????????????????????????????[GT][AC]TGGAATATTA?GTTTTATCCCTTAGAAAAATTAATCCGAATCAACTTACGAAGAAATATAAAAAGTATTAATTGATGACGACCAATTTTACAATTCTGTAGTTACA
GCACATGCTTTTGTAAATAATCTTCTCACAGTTATACCTATCTTAATTGGAGGCTTTGGAAAATTGACTAGTACCATTAATATTGGGAGCCCGAGATATGGCCTTCCCACGAATAAATAATATGAGTTTTTGA
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CATTACATTTAGCAGGAATTCATCTATTTAGGAGCAGTTAATTTTACTACAAGTATTCATAGCGTCAATAAGACGTAACAATAGAGTAATCTCATTATTCACCTGATCTGTTTTAATTACAGCTTT
TCTTCTTCTGCTTCTTGGCAGTTCTAGCAGGAACTAATAATATTACTAACGGACCGAACTTAAATACTACTACTTCTTGATCCAGGAGGAGGAGCCCAATTCATACCAACATCTATTT
Arorathrips xanthius
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TGACTTTTACCACCTTCAATAACTTTTAAATCACTTGAAC---
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Bregmatothrips venustus
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Chilothrips sp.
AATTCATATTTTCAATTTGGATTTTGTATCAGGTTATATTAGGACTAGCATTAAAGAATATTAATTCGACTTAAATTCGAACATCAATAAAAATTTTATATTAGAAATGACCAATTTTACAATTCATTTG

TAACAGCCACGCATTCATTATAATTTTTTTTACAGTTATACCAATTATAATCGGAGGGTTTGGAACTGACTTGTGCCTTAATATTAGGAGCGCCAGACATAGCGTTCCTCGATTAAATAATATAAGAT
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TAAATTTATCACCACAATTTAAATTTAAAAATTTAAAAAATTTTCTATAGATAAATCAACCCTATTTGTATGATCTGTAATTTCACTGCGATTCTTATTATTATCTTTACCAGTTTTAGCAGGTGCAAT
TACAATACTTTAACTGACCGAAAATTTAAACACTTCTTTCTTTGATCCTAGAGGAGGTGGAGACCCAATTTTACCAA????????

Dactuliothrips boharti

AGTTTTATACTTTTTATTTCGGAATTTGGTCCGGAATATTAGGATTATCGTTAAGAAATAATAATTCGCTAACACTTCGATCATCTGGAAAAGTACTCATTGAAGATGACCAATTCTACACTCTATCG
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ATTTTTCTCTACATCTAGCGGGAATTTCTCAATTTTAGGAGCAGTAAACTTTATCTCGACAGTAACTAACTTTTTTAAACAAAGAAGGGGGAATAGAAAAAATATCTCTTTTTTTCATGATCCGTGCTAATT
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Desmothrips broomei

TGTTTTGTATTTTTATTGGAAATTTGATCTGGAATACTTGGCTTGTCTTTGAGAATGCTAATTCGTATTACTCTTCGGAGACCTGGAAAAGTTTTAATTGAAGATGATCAGTTTTACAATTCTGTGTT
ACTTCTCATGCTTTTGTATGATTTTTT[GT][GT][AT][C][AG][CG][CT][CT][AT][GT][A][AC][CG][AT][AT][AT][AT]AATCGGTGGTTTTGGTAATTGATTAGTCCCTTGATGTTAGGTTCTCCTGATATGGCTTT
TCCTCGTTAAATAATATAAGTTTTGGCTGTGGCTCCTGCTTAAATGATGTTAATTTTGGGAATATTAGTTGGTGAGGGAGCTGGTACTGGTTGAACTGTTTATCCTCCTTTGTCAACTTTTTTTCATTCTT
CAATTTCTGTTGATTTGACTATTTTTCTCTTCAATTTAGCTGGTATTTCTTCTATTCTGGGTGCCGTAAATTTTATTACTACTGTTATTCAATTTGCCAAAATAAAGCTGTTAGGATTGAGTTTTTACCTCTATTT
CTTGATCTGTAATCATTACTGCTATCTTATTACTTTTTATCTTTGCTGTTTTGGCTGGAGGAATTACAATGTTGTTGATGGATCGAACTTAAATACTTCTTTTTTGGACCTAGAGGTGGTGGGGACCCATT
TTGATCAACATTTATT

Elixothrips brevisetis

TATCTATATTTTTATTTTGGATTTGATCAGGAATCCTTGGTTTTATCATTAAAGAATACTTATTCGATTAAATCTTCGAACATCAATAAAACTTGTCTTAGAAACGATCAATTTTATAATTCGGTTGTC
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ACAAATGCTTTTAAACGGACCGTAATTTAAATACATCTTTCTTTGACCCAAGAGGAGGTGGAGATCCAATTTTATACCAACATCTATTT

Erythrothrips arizonae

AGCTTTATATTTTGTATTTGGTGTATGATCTGGTATATTAGGTTTATCATTAAAGTATACTTATTCGGATTACTTTACGAGCTCCAGGTAAAAATTTAATTGAAGATGATCAATTTTATAAATCTGTAGT
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CTATTTTATTGCTTTTATCTTTACCAGTTTTAGCAGGAGCTATTACAATATTATTAACAGATCGAAATTTAAATACATCATTTTTTGATCCTAGAGGAGGGGGAGATCCTTTACTTTACCAACATTTATT

Erythrothrips gemmatus

GGTTTTATATTTTATTTTGGAGTTTGGATCTGGAATATTAGGGCTTCTTTAAGGATATTAATTCGAATTTACTCTTCGAGCTTCTGGAAAAATTTCTATTGAAGATGACCAATTCTATAAATCTGTAGT
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TGACTTCTCCACCTTCTTAAATTTTACTTTTATTAGGAATAATCTTTGAGATGGGGCAGGACCGGATGAAACAGTTTACCACCTTTATCAACATTTTATCATTCTTATTTCAGTAGATTTAACAGATTTT
TTCGTTACACCTTGTGGGATTTTCAATTTTAGGAGCAGTAAATTTTATTACTACAATTTTACATTTACGAGATAAAAAGAATTAGACTAGAATTTTATTCAATTTTGCCTGATCTGTTCTTATTACTGCTA
TTTTATTACTATCATTACCCGCTTAGCAGGAGCTATTACTATATTATTAACGGACCGAACTTAAACACTTCAATTTTTGATCCTAGAGGTGGAGGAGACCCCTTACTTTATCAGCATTATTT

Heterothrips australis

AATCCTATATTTTTATTGGAAATTTGATCAGGGATATTGGCTTATCTTTAAGAATAATAAATTCGACTAGCTCTGCGAACACAAATAAAATTAATAATTGAAGACGATCAATTTTATAAATCAATCG
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ACCATATTGTTAAACAGATCGAAATTTAAATACCTCATTCTTTGATCCAAGGGGAGGAGGAGATCCAATCCTTTATCAACATTTATT

Heterothrips lewisi

AATTTTATATTTTTATTGGAAATTTGATCAGGTATACCTTGGTCTATCATTGAGAATAATAAATTCGATTAACCTTTACGAACACCAATAAAATTAATAATTGAAGACGACCAATTTTATAAATCAGTTGT
AACCCTACTACGCAATTTGTAATAATTTTTTTTACAGTTATACCAATTTAATTTGGTGGATTTGGAAATTTGATTAGTCCCCTTATACTAGGAGCACCAGACATAGCATTTCACGATTAATAATATGAGGTT
CTGGCTACTACCCCTCAATAACTACTAATTTCTGGGT---
TTATAGGAGATGGGGCAGGAACCGGATGAACACTGTATCCACTCTTTTACTCTTTTACCATAGAGGAATTTCTGTAGATTTAACAATCTTTTCCCTTCACTTAGCTGGTATTTTATCCATTTTAGGAGCAGT
TAACTTTATTCAACAATTTTAACTTACGAAACAAACAAATTTGGTCTAGAAAGACTAACACTTTTACATGATCTGTTTAAATTACAGCAGTACTACTACTTTTATCATTACCAGTTCTTGCAGGAGCAATC
ACTATACTTCTTACAGACCGAAATTTAAACACATCATTTTTTGACCCTAGAGGGGGCGGAGACCCAATTTTATACCAACACTTATTC

Heterothrips sp.2

AATCCTATATTTTCTATTTGGAAATTTGATCAGGTATATTAGGATTATCATTAAAGAATAATAAATTCGCCTAACCTTGGCAACACCTATAAAAATAATAATTGAAGACGACCAATTTTATAAATCAGTAG
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TTGACTTTTACCTCTTCTATGACTTTTTAATTCTAGGTT---
TAATAGGAGCAGGTGCCGGAACAGGTTGAACCTTTACCCCTTTATCAACCTACTACCACAGAGGAATTTCCGTAGACCTAACAACTTTTCTCTTACCTAGCGGGAATCTCATCTATCCTAGGAGCA
GTAAACTTTATTCTACAATTTCAAACTTACGAAACAAACAAGTAGGATTAGAAAGATTAACACTATTACATGATCCGTTTTAATCACCGAATTTTACTACTATTATCTTTACCAGTACTAGCCGGTGC
ATTACTATACTTTTAAACAGATCGAAATTTAAATACCTCTTTTTTGGACCTAGAGGGGGAGGAGATCCAATTTTACCAACACCTATTC

Heterothrips paulistarum_ltirapina

????????????????TCCGAAATTTGGTCCGGTATACTAGGTATATCGCTTAGAATAATAAATTCGACTTGCCTCCGAACTAACAAATAAGATAATAAATTGAAGACGACCAATTATACAACTCAATTGTTAC

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GTAAATTTTATTTCAACCATTTTAAATATACGAAACAAAGAGATGGGATTAGAAACCCTAACTCTTTCACCTTGATCAGTTTTAATTACCGCCATTCTACTACTTTTATCACTACCAGTCTTAGCTGGGGCA
ATTACAATTTAATAACAGATCGAAACCTAAACTTTCATTTTTTCGATCCAAGAGGAGGGGGAGACCCAATTC????????????????

Heterothrips savanicus

AATTTTATATTTCTTATTTGGCATTGATCAGGAATATTTGGCCTATCTTTAAGAATAATAATTCGATTAGCTTTACGAACACAGATAAAAATTAATAATTGAAGATGACCAATTTTATAACTCAGTTG
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TAAATTTTATTTGACTATTTTAACTTACGAAATAAAAACATCGGACTGGAGTGTAACTTATTTACATGATCTGTTTTTATTACAGCAGTCTTCTCTTTTGCCCTCCAGTCTTAGCAGGAGCAATC
ACTATATTATTAACAGATCGAAACTTAAATACCTCGTTTTTTGATCCAAGAGGTGGAGGAGATCCAATTTCTTTATCAACATTTATTT

Heterothrips stellae

AATCCTTTACTTCATATTTGGCATCTGATCAGGGATATTCGGACTATCGTTAAGAATAATAATCCGACTCACTTTACGAACCTCCATAAAGATAATAATTGAAGACGACCAATTTTATAACTCCATTG
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TTTGACTTTTACCCCCCTCAATAACTTTACTAATCTTAGGAA---
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GTAAACTTCATCTACCATTATTAACCTACGAAATAAGCCAAATCGGGATAGAAAGATTAACCCTATTCACTTGTCCGTTCTTATTACAGCAATTTCTACTACTCTTCCCTACCAGTACTAGCGGGGGC
ATCACTATGTTACTAACAGACCGAAACTTAAACACCTCATTTTTTTGACCCTAGAGGAGGTGGGGATCCAATCCTATACCAACATT[C T]ATTC

Heliethrips haemorrhoidalis Brazil

AATTTTATACCTTATTTGGAATTTGATCAGGAATATTTAGGTTTATCTTTAAGAATAATAATTCGTTTGAACCTTACAACACCATTTAAACCAATTTTGAAGATGATCAATTTTATAATTCAGTTGT
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TGATTTTTACCACCATCTATTCTATTATTAATTTTAGGAA---
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ACAATATTATTAACAGACCGAAACTTAAACACTTCATTTTTTTGATCCTAGAGGAGGAGGTGACCAATTTTATATCAACACTTATTT

Heterothrips sp.1

AGTTTTTACTTTTTGTTTGGAAATTTGATCAGGTATATTTGGTCTTTCTTTAAGTATAATAATTCGTTTTACTTTACGAACCCACACAAGTTAATAATTGAAGACGATCAATTATACAATTTCTATTGTT
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Heterothrips sp.

AATTCATACTTTTTATTTGGAATTTGATCAGGTATATTTGGGTTATCATTAAGAATAATAATTCGATTAGCTTTACGAACCCCAATAAAGTTAATAATTGAAGACGACCAATTTTATAATTCAGTTG
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CACTATACTTTTAAACAGACCGAAACCTAAACACTTCATTTTTTTGATCCTAGAGGAGGTGGAGATCCAATTTCTTTATCAACATTTATTT

Lenkothrips sensivus

????????????????TGGTATTTGATCAGGAATATTAGCCTATCTTTAAGTATGATAATTCGACTAACACTACGAA[CT][CT][CT]ATAAAAATTAATAATTGAAGACGACCAATTTTATAACTCAGTTGTA
ACTGCCACGCTTTGTAATAATTTTTTTACTGTTATACCAATTTAATTGGTGGATTTGGAAATGATTGACTTGTACCATAATATTAGGCGCCCCAGATATAGCCTTTCCACGATTAATAACATAAGATTCT
GGTCTTCTCCTTCAATAACTTTTAACTTAGGTA---
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TAAATTTTATTTCAACTATCCTAAAATTTACGCAACAAGCAACAGGATTAGAACTTTAACTTTATTTACTTTGATCCGTTTAAATTACCGCTATTTACTCCTTTTATCGTTGCCAGTTTAGCTGGAGC?????
??

Microcephalothrips abdominalis

AATTTTATACTTTTATTTTGGGTTTTGATCAGGAATAGTAGGACTTTCTCTAAGAATAATAATTCGACTAAACCTACGAACATCAATAAAAATTTTGTTCACACGATCAATTTCTATAACTCTATTGT
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TGACTTCTCCACCATCTTAAACCTTCTAATTAAGGCT---
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TAAATTTTATTACAACAATCTTAAATTTAAAGTCTAAAAATTTATCTAGAGAAAAATTAAGATTATTTTCTTGGATCAGTTTACTAACAAGCAATTTCTACTTTTATTATCTTCCAGTACTAGCAGGAGCTAT
TACAATACTTCTAACAGACCGAAATCTTAAACATCATCTTCTCGACCAAGTGGAGGAGGAGACCCAGTATTATACCAACATCTTTTT

Neohydatothrips sp.

TATTTTATACTTTTTATTTGGATTTGATCAGGTTAATAGGTCTTCTACTAAGAATAATAATTCGACTTAACTTACGATCACCAATAAAAATTTTATTCAACGATCAATTTTATAATTCAGTAGT
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TGACTTTTACCACCTTCAATAACTTTATTAATCATAGGAC---
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TAAATTTTATTACAACAATTTTAAACCTAAAAACCAAAAACCTTTCATCAAATAAAAATAACTATTTATTTGATCAGTTTTATTAACAGCAATTCTTTACTTTTATCTCTACCAGTTTTAGCGGGAGCAAT
CACAATACTATTAACGTATCGAAACTTAAATACGTCATTTTTTATGATCCAAGGGGAGGAGGCGATCCAGTACTCTACCAACACTTATTC

Scirtothrips sp.

TATTCCTATACTTTATATTTGGATTTTGGATCAGGAATGCTTGGTTTATCTTTAAGAATATTAATTCGACTTAATTTACGAGTACCTATAAAAACCTTTTCATTAGAAATGATCAATTTTATAATTCGTGTTGT
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GGCTTTTACCCCTTCAATAAATCTCCTTATTATAGGAC---
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TAAATTTTCACTTACAACAATTTAATTTAAAAACAAAAAATTTATCATCAGACAAAAGAACACTTTTCGTTTGGATCAGTTCTGTTAACAGCTATTCTTCTTCTTCTTCTACCAGTCTTAGCAGGAGCAAT
TACAATACTATTAACAGACCGAAATTTAAACACATCTTTTTTGGACCCAGGAGGAGGAGGGGACCC[A T]G[C T]CCTTTATCAACATCTTTTT

Scutothrips nudus_Itirapina

AATTCCTTATTTTCTATTTGGAAATTTGATCAGGTATACTAGGCTTTCCCTTAGAATAATAATTCGATTAGCACTACGAACACCTATAAAAACCTTATAATTGAAGACGATCAATTTTACAACCTCAGTTGT
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TAAATTTTATCTCTACTATTTTTAACTTACGAAATAAACAGATGGGGTTAGAAAGATTAACCTTATTCACATGATCAGTTTAAATTACAGCCGTTTTACTTTTACTTTCTTCTACCAGTTTTAGCAGGAGCTAT
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Scutothrips nudus_Campinas

????????????TCTTTTTGGATTTGATCAGGAATACTAGGCTTTCCCTTAGAATAATAATTCGATTAGCACTACGAACACCTATAAAAACCTTATAATTGAAGATGATCAATTTTATAATTCAGTTGTTACA
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Selenothrips rubrocinctus

????????????[AT]CCTTTTGGATTTGATCAGGGATATTAGGACTATCTTTAAGAATGTTAATTCGGTTATCTCTACGATCACCATTCAAATTTACTAATTTTCGGATGACCAATTTTACAATTCGGTAGTTA
CAGCCCACGCATTCGTTATAATTTTCTTTATAGTTATACCAATTAATAATTCGAGGATTTGGAAACTGACTAATTCCTTTAATAATTAGGATCCCCAGATATAGCATTCCCAGGATTAATAATATAAGATTCT
GATTTTTACTCCTCCCTCAATATACTATTAATTTAGGGA---
TGATAGGAGAAGGGGACAGGAACAGGATGAACCTGTTTACCCCTCTATCTACATTTTACCACCTTCCATCTCTGTTGATTTAACTATTTTTCTTTACATTTAGCTGGTATTTCTGCTATCTTAGGTGCAGT
CAATTTTCAATTCG[CG][GT]ATCTTAAATTTACGAAATAAGATACTAAGGTTAGAAATGATAACTCTGTTTACTTGATCGGTATTTCTTAAACAGCAA[AT][GT][GT]ATTGCTTTTATCTCTCCCTGTCTTAGCA
GGAGGAAT?CA??A[AC]TTATGACAGATCGTAATCTAAATACTTCTTT[GT]TCGACCCTAGAGGAGGAGGAGAC[A C]CCATC????????????????

Stomatothrips flavus

TGCTTTATACTTTCTATTTGGAAATTTGATCAGGAATATTAGGCTTATCTTTGAGAATACTTATTCGAATTACTTTACGTAATTCGGAAAAGTTTTAATTGAAGACGATCAGTTTTATAATAGAGTAGT
AACTGCTCAGCCTTTGTAATAATTTTTTACTGTTATGCCTATTTTAAATTTGGTGGATTTGGAAATTTGGTTAGTTCCTTTAATAATTAGGATCTCCTGATATGGCATTTCCTCCGATTAATAACATGAGATTTT
GACTTTCTCCTCCTTTTAAAGCTTTTAAATACTAGGTATTTCTAGGAGATGGGGCTGGAACAGGTTGAACCTGTTTACTCTCCTTTTACTACTTTTTTACTCTTTCTATTTCAGTAGATTTAACAATCTTTT
CATTACATCTAGCAGGGATTTCTTCAATTTTAGGAGCTGTAATTTTATACAACATTTACTTACTTTACGTTGTAATAAAAATAAAAATAAGAACATATTTTCTTGTGATCAGTCTTAATTACTGCTATT
TTACTTCTTCTTTCATTACCTGTTTTAGCGGGGGGAATTAATACTTTTAAATGATCGAAATTTAAATACTTCTTTCTTTCGACCAAGAGGAGGGGGGATCCAATTC????????????????TT

Thrips sp.

AATTCCTACTTTATTTTTGGATTTTGGATCAGGAATACTAGGTTTATCTCTCAGAATAATAATTCGACTTAATCTACGAACACCAATAAAAATGTTTTTAAAGAAATGATCAATTTTATAACTCAGTTGT
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TGGTTGTTGCCCTTCAATAACTCTTATTGGTTGGAC---
TTATAGGAGAAGGGGACAGGAACAGGATGAACAGTTTATCCACCTTTATCAACATTTTACCATTTCAGGATCCTCAGTTGATATAACTATTTTCTCTTCACTTAGCTGGGGTTTCATCAATTTTAGGGGCATT
AAATTTTATTAACAATAATAAATTTAAAAACCGGAGAAATAAGACTAGAAAAAATTTAGGCTATTTGTTTGGATCAGTAATTTCTAACAGCTATTCTTCTTCTTTTATCTCTTCCAGTTTTAGCAGGAGCTATT
ACAATACTTTTAAACAGATCGAAATCTGAATACTTCAATTTTTTGGACCCAGGAGGAGGGGGGAGACCCAATTTTATATCAACATCTCTTT

Frankliniella sp.

????????????TTTTATTTTGGAA[AT]TTTTGATCGGAAATTTGGTCTATCACTTAGAATAATAATTCGTTTAAATTTACGAACA[ACT][AC][AT][AT]TTAAATTTATTCATTTCAAATGATCAGTTCTACAATT
CAATTTGAACAGCCCATGCATTCGTTATAATTTTTTTTACAGTAATACCTATTATAATTTGGAGGTTTTGGTAATTCGATTAGTT[CT]CATTAAATGTTAGGGGCTCCAGATATAGCATTTCACGACTTAAACAAT
ATAAAGATCTGACTTCTACCTCCTTCCCTTAAACATTTAATTTATAGGTC---
TCTCAAGGAAAGGAGCAGGAAACAGGTTGAACAGTTTACCACCTATCAACCTTTTATCATCTGACCCCTCAGTAGATTTAACAATTTTTTCTTCTCATCTAGCTGGTATTTTATCAATTTCTAGGAGCTC
TTAATTTTATCACCACAATCTTAAATCTAAAAATTAAAAAATTAACGACTGAAAAAATAAGATTGTTTGGTTGATCAGTTATTTTAAACAGCAATTTTGGCTTCTTTTATCACTACCGGTTCTTGCAGGAG[CG]T
ATTAC[AT]ATA[AC]TTTTA[AT]CCGATCGAAATTTAAATACATCTTTTTTGGATCCAAGTGGAGGAGGTGATCCAG????????????????

Heterothrips australis_Alto_Paraiso

AATTTTATACTTTTATTTTGGCATTGATCAGGAATATTGGCTTATCTTTAAGAATAATAATTCGACTAGCCCTACGAACACAAATAAAAATTAATAATTGAAGATGATCAATTTTATAATTCATTTG
TAACGGCTCAGCATTCGTAATAATTTTTTTTACAGTTATACCAATTTAATTTGGAGGTTTTGGTAATTCGACTTGTCCCTCTTATATTAGGGGCCCCAGATATAGCTTTCCCTCGACTCAATAATATAAGATT
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TAAATTTTATCTCAACTATCTTAACTTACGAAATAAAAATTTGGAATAGAATGCTTAAACCTATTTACTTGTATCTGTTTTTATTACAGCGGTTCTTCTTTTATCTTTACCAGTTTTAGCAGGAGCTATT
ACTATATTATTAACAGATCGAAATTTAAATACCTACTTCTTTGACCCAAGAGGAGGAGGCGATCCAATCCTTTTATCAACATTTATTT

Heterothrips sp.3

AATCCTATATTTTTATTTGGAAATTTGATCAGGGATATTGGCTTATCTTTAAGAATAATAATTCGACTAGCTCTGCGAACACAAATAAAAATTAATAATTGAAGACGATCAATTTTATAATTCATTCG
TAACGGCTCATGCATTCGTAATAATTTTTTTTACAGTTATACCAATTTAATTTGGGGGATTTGGTAATTCGACTTGTCCCTTTAATACTGGGAGCCCCGATATAGCTTTCCCTCGACTTAAATAATATAAGATT

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Heterothrips sp. _Porto Alegre
AATCCTTTACTTTTTATTTCGGAATTTGATCAGGGATATTAGGATTATCACTTAGAATAATAATTCGATTAACACTACGAAACCTAATAAAATTAATAATTGAAGACGATCAATTTTATAAATTCAGTAG
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TAAATTTTACTTTCTACAATTTCTTAATCTACGAAATAAACAAATAGGTTTAGAAAAGTTTAACTTATTACATGATCCGTTTAAATTAAGTCCATTCTTACTTCTTTCTCTCCAGTATTAGCAGGGGCTATT
ACAATACTATTAACAGATCGAAATCTAAACACCTCCTTCTTCGACCCTAGAGGAGGGGGAGACCCAATTTTATATCAACACTTATTT

&[dna]

Aeolothrips duvali

CCGAAATCTACCGAGGCAAGGGCGCCTCGAAAACAGCTGGCAAC[CG]AAGGCCGCTCGAAAAGTCCGCGCCCGCCACCGGAGGTGTGAAAAAGCCCCATCGGTACCGCCCTGGTACCGTCGCTTT
GAGGGAGATTCGCCGTTACCAGAAGAGTACCGAGTTGCTGATCCGCAAATTTGCCCTTTCAGCGCCTTGTTCGCGAGATTGC[GT]CAGGACTTCAAAAAGTACCTCCGATTTCAGAGCTCCGCCGTGATGG
CCTCCAGGAGGCTCAGAAGCGTACCTCGTGGGTCTTTTTGAAGACACCAATTTGTGCGCCATCCACGCCAAACGC

Aeolothrips intermedius

CCGAAATCTAC[CT]GGAGG[AG]AAGGCCCCAGGAAGCA[AG][CT]TGGCCACCAAGGCAGCGCGCAAGTCCGCCCCGCAACCGGAGGTGTCAAGAAACCCCATCGTTACCGCCCTGGTACCGT
CGCTTTGAGGGAGATTCGTCGCTATCAGAAGAGCACCGAGCTGCTGATTCGCAAATTTGCCCTTTTACGCGCCTTGTTCGAGAAATTC[G T]CAGGATTTCAAAAAGTGA[C
T]CTGAGTTCCAGAGCTCCGCCGTGATGGCCCTCAGGAGGCTCAGAAGCGTACCTCGTGGGTCTTTTTGAAGACACCAATTTGTGCGCCATCCACGCCAAGCGC

Aeolothrips kuwanaii

CAGGAAGTCCACTGGGGGAAGGCCCAAG[AC]AAACAGCTCGCCACCAAGGCCGCGCAAGTCTGCGCCCGCCACCGGAGGTGTCAAGAAACCGCATAGGTACCGACCGGGTACTGTTGCCCT
GCGAGAAAT[AC]CGCCGTTACAAAAAAGTACCGAATTGTTGATCCGCAAGTTGCCATTCCAGCGCCTGGTACGTGAAATTCGCGAGGACTTCAAGACTGACCTCCGTTTCAAAGTCCGCCGTATGG
CCTCCAGGAAGCTCAGAAGCCTACCTCGTTGGTCTCTTTGAAGACACCAACTTGTGCGCCATCCACGCCAAGCGC

Arorathrips xanthius

CCGAAATCTACCGAGGCAAGGCTCCCGGAAACAACCTTGCCACCAAGGCCGCTCGTAAGAGCGCACCCGCCACCGCGGAGTGAAGAAGCCCCATCGTTACCGCCCTGGTACCGTCGCTCTTCG
TGA[AG]ATTCGTCGTTATCAGAAGAGCACCGAGCTTCTCATCCGCAAATTTGCCCTTTTACGCGGCTAGTCCGTGAAATTCGCGAGGATTTCAAGACGGATCTCAGATTTAGAGCAGCGCCGTATGGCCCT
GCAGGAGGCTTCTGAAGCTTACCTGGTCTGCTCTTCGAGGACACCAACTTGTGCGCCATCCACGCCAAGCGT

Bradinothrips williamsi

CCGCAAGTCCACCGAGGCAAGGCTCCCGCAAGCAGCTGGCCACCAAGGCAGCTCGTAAGAGCGCGCCGGCTAC[CT]GGAGGAGTGAAGAAGCCTCATCGTTATCGCCCTGGTACCGTCGCTCTTC
CGTGAGATCCGTCGTTATCAGAAGAGCACTGAGCTTCTGATCAGGAAGCTTCTTTCCAGCGTCTGGTTCAGGGAAATTCG[CG]CA[AG]GACTTCAAGACTGATCTGCGTTTCCAGAGCAGCGCCGTATGG
CTCTCCAGGAGGCTCCGAAGCTTACCTGGTGGTCTCTTTGAGGACACCAACTTGTGCGCCATCCACGCCAAGCGC

Bregmatothrips venustus

CAGAAAAAGTACCGGAGGGAAGGCTCCCGGAAACAGCTCGCGACCAAGGCTGCTCGCAAATCCGCGCTGCAACCGGAGGAGTGAAGAAGCCTCACCGTTACCGTCCGGGTACCGTCGCTCTTC
GTGAAATTCGTCGTTATCAGAAGAGTACTGAGCTCCTTATCAGGAAATACCCTTTCAACGCCTGGTAAGAGAAATTCGCGAGGACTTTAAAAGTACCTAAGATTTCAAAGTCCGCCGTATGGCCCTC
CAGGAGGCTTCCGAAGCTTACCTGGTGGTCTCTTTGAAGACACCAACTTGTGCGCCATCCACGCCAAGCGT

Caliothrips phaseoli

GAGGAAGTCCACCGAGGCAAGGCTCCCGGAAAGCAGCTTGTCTACTAAAGCTGCCCGGAAAGTGTCTCCGGC[AC]ACCGGAGGTGTGAAAAA[AG]CCTCATCGTTATCGTCCCGAACTGTTGC[C
T]CTGCGTGAATCCGTCGGTA[CT]CAGAAGTGCAGTGTGCTT[CT]TGATCCGCAAGTTACCCTTTCAGCGATTGGTGAAGGAAATTCGCTAAGATTTCAAACCGACCTCCGTTTCAATCCAGCGCCGT
ATGGCCCTCCAGGAGGCTCCGAGGCTACCTCGTGGTCTCTTTGAGGACACCAACTTGTGCGCCATCCACGCCAAGCGC

Chilothrips sp.

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Dactuliothrips kaszabi

TCGCAAGTCCACCGAGGGAAGGCACCCCGAAAGCAGCTCGCCACCAAGGCTGCTCGCAAGAGTGCACCTGCTACCGGAGGTGTGAAAGAACCCCATCGTTACAGGCCCGGTACCGTCGCTTTGC
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Dactuliothrips boharti

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Dendrothrips ornatus

CAGGAAGTCCACCGAGGCAAGGCTCCCGGAAACAACCTCGCCACCAAGGCTGCCCGGAAAGTCCGCCCCAGCCACCGGAGGAGTGAAGAAGCCCCATCGGTACCGCCCTGGTACCGTTGCTCTTC
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Desmothrips broomei

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Dorythrips moundi

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Echinothrips selaginellae

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Erythrothrips gemmatus

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Heterothrips australis

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Heterothrips lewisi

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Heterothrips sp.2

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Heterothrips paulistarum_Campinas2

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Heterothrips paulistarum_Itirapina

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Heterothrips paulistarum_Itirapina

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Heterothrips savanicus

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Halmathrips sp.2

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Halmathrips sp.

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Helionothrips funebris

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Heterothrips cacti

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Heterothrips flavitibia

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Heterothrips sp.1

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Heterothrips sp.

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Hydatothrips sp.

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Lenkothrips sensivus

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Lenkothrips kaminskii

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Microcephalothrips abdominalis

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Neohydatothrips sp.

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Scutothrips nudus_Itirapina

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Scutothrips nudus_Campinas

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Selenothrips rubrocinctus

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Franklinothrips sp.

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Heterothrips australis_Alto_Paraiso

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Heterothrips sp._Porto Alegre

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&[dna]

Aeolothrips duvali

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TTCCCGGGCGT-G---GC-CTC-GTGC--CG-CGTGCG-GGTGTTT-GGAC---CCGC-GGTGACCTGGCCGGCACCCGACCGTAGC-AAAGATT-AGGGCGAGGGACCCGCACA--TTGTTGCGTTTATGATGCTCTT---
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Aeolothrips intermedius

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AGCCCGGGCGT-G---GC-CTC-GTGC--CG-CGTGCG-GGTGTTT-GGAC---CCGC-GGTGACCTGGCCGGCACCCGACCGTAGC-AAAGATT-AGGGCGAGGGACCCGCACA--TTGTTGCGTTTATGATGCTCTT---
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Aeolothrips kuwanaii

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T]CACGGGTCCCTGGG[A C]--ATCGTTCCGTATCCACTCGCCG-GTCGGTTCGT-TTCCGTT[C G]GGCGAGCTGCACTTCGCT--[C T]CTAGTAGGACGTCGCGACCCGTTGGGG--A--AAGTCGGTC---
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CTCGAC?G??
??
??
??
???

Arorathrips xanthius

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Aulacothrips minor

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Aulacothrips amazonicus

AAACCTAAGCGGGTGGTAAACTCCATCTAAGGCTAAATATGACCACGAGACCGATAGCGCACAAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAATAGTACGTGAAACTA
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CCGTTCCGTCTACTTCGCGC--CGCGTCCG-CCTCGGTCGTTGGTACTGCACTTTCCTCGTGTAGTAGGAGGTCGCGACCCGTTGGGGT-----TCGCCGC---AATGGCCCGCGGTGGCAGACCG--
CGCGGAGCGCTCG---TG-CCTTGTG--CTTGTGCTG-CGCGCG-GGAC---CCGTGGTTGACCGTGGCCGGCACCCGACCGTAGC-AAAGATTA-CGGGTAAAGGACCCGCTCGCGTCCGCTCCAGGCTCG---
--CAAGAG-----TCTCGGACCGGTCT-----GGTCCCTGCTGCTGCTGTG????????????????????????????????TCTAACATGTGCGCGAGTCATTGGGTGA-
GCAAAACCTAAAGGGCGAAGCGAAACGAA---GGAC-TGGCACTTGTG-----CC--GGTCCGAGGGGTGATGGGT-C--GTCCT-----GCGTGGCGGCCCGCAACCCCGGGACGTTCTGATCTCT--
CGGAGATGAGGCGTACCTAGAGCGCACCTGTTGGTACCCGAAAGATGGTGAACATATGCCTGGCCAGGACGAAAGCCAGGGGAAACCCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTG

TATGGTGTAAACGGACGAGACCGAAAAGTCCGATGGCG-GAGATTCAAGCTTT---ATCC---CGGAAAGGTCTCTCG--GGGG-GCAGATGGTACGGACT-GCGCGG-GCC-CTTACGGGGCGCCGCG---
TACGCTTCGTGTCCACTCGCTTC-TCGGGTACGT-TTCCCTCCGGGTGGGCTGCACTTCTCC--GCTAGTAGGACGTCCGACCCGTTGGGGT-----ACGGGGGTC---AAAGGCTCGAGGTGGCAGACCG-
TTGGGGGGCGC-TT---GG-TTT-ACTCCTCG-CGTTGC-TCCGGCG-GACC---TTCG-ATTGACCTGGCCCCACTCGACGGTAGC-AAAGGT---TGGGTACGGGACCGCAC----TTTAGTGTTCGTTGGGTTT---
TT??
GAGCACTT[G C T]??
-----CTAGT[C G]CCGAGGGAGGA[G T]GGTC-G--GTCCT---GAGTGGCCGACCCGCACTCCCGGGCGTCTCGATCTCAT---
TGAGATGTGGCGCACCCAGAGCGTACACGTTGGGACCCGAAAGATGGTGAACATACTGGCCAGGACGAAAGTCAGGGGAAACCCTGATGGAGGTCCGTAGCGATTCTGACGTGCAAATCGATCGTCGG
AGCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTTCCCTCCGAAGTTCCCTCAGGATAGCTGGCGCTCA-TTC---CGGACGTG-----
AGACGAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGCCGAAACGACCTCA[GT]CCTATTCTCAAACCTTAAATGGGTGAGATCTCCGGC-TTG[C T][A T]T---AGG-GAAGCC---GGAGA[C T]---
-----GATT-G????????????????????????????????

Dactuliothrips boharti

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTG
ATATGGTGTAAACGGACGAGACCGAAAAGTCCGATGGCG-GATATTCAGCTTT---ATCC---CGGAACGGTCTCTGACGGGG-GCAGATGGTACGGACT-GCTCGG-GCC-CTTACGGGGCGCTGGG---
TACGCTTCGTGTCCACTCGCTCTTCGGGTACGT-TTCCGCCCGGTGGGCTGCACTTATCC--GCTAGTAGGACGTCCGACCCGTTGGGT---ACGGGGGTC---
TATGGCTCGAGGTGGCAGACCGTTTAGGGGGCGC-TT---GG-TTT-ACTCCTCG-CGTTGC-TCTTGC-GACC---CTCG-ATCGACTGGCCCCCACTCGACGGTAGC-AAAGGT---TGGGTACGGGACCGCACA-
-CCTCCGTGTGTTGCG-----CGGGAACGGAGCGAATCGACTTCGTGAAACTCCCGCCGGTCCGTTGA-----ATTTTCCGGTACGCGCGCTTCTGCTTTTGGTA-
CTCGTCCGACCCGCTTTCTAACATGTGCGGAGTCAATTGGGCTCTGCGAAACCTAAAGGCGAAATGAAAGTAAA---GGCC-GTGGTCTCTAGA-----CCTAGTGCTTAGGGAGGATGGTC-G-
ATCCT---ACGTGGTCCGACCCGCACTCCCGGGCGTACACGGGTCTT--
CTGACAGTGGCGCACCCAGAGCGTACACGTTGGGACCCGAAAAGATGGTGAACATATGCCTGGCCAGGACGAAAGTCAGGGGAAACCCTGATGGAGGTCCGTAGCGATTCTGACGTGCAAATCGATCGTCG
GAGCTGGGTATAGGGGCGAAAAGACTAATCGAACCATCTAGTAGCTGGTTCCCTCCGAAGTTCCCTCAGGATAGCTGGTGTCTCGGAGG---TAAAAATG-----
AGACGAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGCCGAAACGACCTCAACCTATTCTCAAACCTTAAATGGGTGAGATCTCCGGC-TTGCTT---AACTGAAGCC---GCGAGGT-----
AGTCACAT-GGATCAA-TGAGTGCCAAGTGGGCCAATTT

Dendrothrips ornatus

AGACCCAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATAACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTG
AAGTGGTGTAAACGGACGAGATCGAAAAGTCCGAATGGG-GAGATTCAAGCTCA---TCCG---TGCGGGG-G[A G]CTCTG--CGGT-TCAGATGGTGCAGTCT-GCTCGG-GCC-TTTC--GGGGTCCCGG--
TTTGTTCCTTA-CCACTCGCTCGTAGAGATATCT-TTCCCGTCCGGTGTGCTGCACTTCTCC--CCTAGTAGGACGTCCGACCCGTTGGGTG-----TCCGATTG-TCATGGCCCGCGGTGG-AGCCCG-
CGCTGGGCGT-A-----C-CTT-CGGG--TG-CGTTG-C-GGTGCG-GGAC---CCGT-GGTGCTTGATCGCGCTCAGCGGTATC-GAAGCACT-TTGGGAAGGGACCGCACAG-AGGTTGCGTCTGATGGCCTT---
TCGGGG-----CTATACTCGACAGGTCCG-----TACCCGGTACGGGCGCTACTGCTTTCGATA-
CTCGTCCGACCCGCTTTCTAACATGTGCGGAGTCAATTGGGCTCTGCGAAACCTAAAGGCGAAATGAAAGTAAA---GGAC-AAGCACTTGTG-----CTAGT-CTTAGGGGTGATGACCTG--
TTCCCT---AACAGGACGGTCCGCAACCCCGGGGCGTCTCATTCTCTT---
TGAGAAAGTGGGCGACCCAGAGCGTACACGTTGGGACCCGAAAAGATGGTGAACATATGCCTGGCCAGGACGAAAGTCAGGGGAAACCCTGATGGAGGTCCGTAGCGATTCTGACGTGCAAATCGATCGTCGG
AGCTGGGTATAGGGGCGAAAAGACTAATCGAACCATCTAGTAGCTGGTTCCCTCCGAAGTTCCCTCAGGATAGCTGGCGCTCGGAG-----
GAAAGAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGCCGAAACGACCTCAACCTATTCTCAAACCTTAAATGGGTGAGAACTCCGGC-TTGCTT---AGGTGAAGCC---GCGAGAA-----TTC-
GGATCA---GAGTGCCAAGTGGGCCAATTT

Desmothrips broomei

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATACGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTG
AAGTGGTGTAAACGGACGGGACCGAAAAGTCCGAATGGG-AAGATTCAATGTTTCG---TCCG---TGCGGGTCCGCTTCT--GGGT-TCAGATGGTGCAGTCTG-GCCTGGAGCC-TCTC--GGGGCCCTGGGA--
ATCGTATCGTATCCACTCGTCCCGGTTCGTTCTG-TTCCGTTGCGGGCAGACTGCACTTCTTT--CCTAGTAGGACGTCCGACCCGTTGGGGC-----GTCCGGCC---TGTGGCCCGAGGTGG-AGCCCG-
GTCCCGGGCGC-G---GC-TTT-ATGC--CG-CGTGCG-GGTGTCC-GGAC---CCCG-GGTGACCTGGCCGGTCTCCCGACGGTAGC-AAAGATTT-TGGGCGAGGGACCGCACAA--ATGTTGCGTTTATGTCCT-----
CTGGG-----TATCACTCGAACAGGTCCG-----GACCCGGTACGGGCGCTACTGTTTCGGTA-CCCCTCGACCCGCTTCTTCTAATAGTACGGAGTCAATTGGGTC-
ACGAAAACCTAAAGGGCGAAAATGAAAAGTGA---GGCC-GTGGCTTTCG-----CTAGTGCCGAGGGAGGATGGTC-G-GTCC---GAGCGCCGACCCGCACTCCCGGGGCGTCTCGATCTCTC---
TGAGATGAGGGCGACCTAGAGCGTACACGTTGGGACCCGAAAAGATGGTGAACATATGCCTGGCCAGGACGAAAGTCAGGGGAAACCCTGATGGAGGTCCGTAAAGGTCTGACGTGCAAATCGATCTTTGG
AGCTGGGTATAGGGGCGAAAAGACTAATCGAACCATCTAGTAGCTGGTTCCCTCCGAAGTTCCCTCAGGATAGCTGGCGCTCATTTC---CGGACGTG-----
AGACGAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGCCGAAACGACCTCAACCTATTCTCAAACCTTAAATGGGTGAGAACTCCGGC-TTGCTT---AGGTGAAGCC---GGAGAC-----GATT-
GGATCA---GAGTGCCAAGTGGGCCAATTT

Dorythrips mounds

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAAGAGTACGTGAAACCGA
ACTGGTGTAAACGGACGGGACCGAGAAGTCCGAAGGGC-GGGATTCAAGCTGC-----GACTCGGGAGGCCGATG--GTCG-TCCGACAGTGCAGCC-TCGCGT-GTC-TCTC-
TGGACTACGACGAGTAACTGTATCTGCGGGCTCT--GACGCATCA-CATCCCTGGAGCGACTGCACTTCCG--CCTAGTAGGACGTCCGACTCTGTTGGGCG-----GCCCGTC---
TAAGGCCCTGGGAGGCAGTCCC-GTGGTACCCTC-GT--TGC-CTTTTTGG--CGGCGTTGAGTCCGCGT-GGAC---CCCG-GGTGTCTGGCTGGGACCCGACGGTAGC-GAAAC---
TATGGGATACGCCGAACTAGTTCCTCCGACAGCATTTGCCGTTTGCAAGCT-----TTGACACATATCTGGCAGCAGCGTTATCAAACCTGGTACAGGGGCGCAACTGCTCTCTGTA-
ACCGTCCGACCCGCTTTCTAACATGTGCGGAGTCAATTGGGCTC-GCGAAACCTAAAGGCGAAATGAAAAGTGA---GGAC-CAGCGCCGAATGG-----CCAGTGTCTGAGCGGTGATGTGG-G-
GGCT--TCTAGTCTCCACCCGCAACCCGGGCTTTCGGATTCCCTT---
CGGGAACCGGCGCACCTAGAGCGCACACGTTGGGACCCGAAAAGATGGTGAACATATGCTTGGGCAGGGCGAAGCCAGGGGAAACCCTGGTGGAGGCCCGCAGCGATCTGACGTGCAAATCGGTCTGTCAG
ACCTGAGCATAGGGGCGAAAAGACTAATCGAACCGTCTAGTAGCTGGTTCCCTCCTCGAAGTTCCCTCAGGATAGCTGGCACTCGACCACATCGGAAAAT-----
GAGCCTGTCTCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGTCCGAAACGACCTCAACCTATTCTCAAACCTTAAATGGGTGAGATCCCGGC-TTGCTTGAAGAGTGAAGCT---GCGGGTTT---
CAAGCCCT-GGAAGA--GAGTGCCAAGTGGGCCAATTT

Echinothrips selaginellae

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AACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAATAGTACGTGAAACTGAGGTGGTGTAAACG
GACGAGATCGAAAAGTCCGAATGGG-GTGATTCAAGTTA---TCCG---TGCCGGT-GGCGTGT--GGT-TCAGATGGTGCAGGACG-GCTCGG-GCC-TTTC--GGGGTCCCGG--TTTTCTCCGTATT-
ACTCGGCCT-GCGCGTATCT-GTCCGGTGGGTTTACTGCACTTCTCC--CCTAGTAGGACGTCCGACCCGTTGGGAA----GTTCCGATC---TATGGCCCGTGGTGG-AGCCCG-TGCCCGAGCGC-A----G-GTT-

CGCT--TG-TGTTGC-GGTGCAC-GGAC---CCGC-GGTGACCTGATCGGGCGCCGACGGTATC-AAAGC---TTGGGAAGGGACCCGCACAG-AGGTT?C?TCCGATGCCCG---CACTGGG-----
CTACACTCGGACAGGTCCG-----CACCCGGTCAGCGGCCT????????????????????????????????????TCTAACATGTGCGCGAGTCAATGGGCTCTGCGAAACCTAAAGGCCGAAATGAAAGTGAA---GGCC-
GAGCCTTTCGG-----CTGAGGCTTAGGGGTGATGACC-G--TTCCCT---AACCGGGCGGTCCGCAGCCCCGGGGCGTCTCATTCTCT---
TGAGAAGTGGCGCACCCAGAGCGTACACGTTGGGACCCGAAAGATGGTGAACATGCCTGGCCAGGACGAAGTCAAGGGGAAACCCTGATGGAGGTCCGTAGCGATTCTGACGTGCAAAATCGATCGTCCG
AGCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTCCCTCCGAAGTTCCCTCAGGATAGCTGGCGTCCGGAG-----
GAAAGAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGCCGAAACGACCTCAACCTATTCTCAAACCTTAAATGGGTGAGAACTCCGGC-TTGCTT---AGGTGAAGCC---GCGAGA-----ACT-
GGATCA---GAGTGCCAAGTGGGCCAATTT

Elixothrips brevisetis

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TCTAGCATGTGCGCAAGTCATTGGGT---GTTAAACCTAAAGGCCAGCGAAAGTGAC---GTCT-TCGAGACTCAGGGCGCCTCGCGCGTCTCTCT-
CGTGAGACTAGGGGTGATGACT-G--GCATC----TCGCATCCGGTCCGCAACCCTGGGATGTCTATGTCCTCGT---
TGAGACTTGATGTCTCAGAGCGTACATGTTGGTACCCGAAAGATGGTGCACCTTACCTGCTGGCCAGGACGAAGTCAAGGGGAAACCCTGATGGAGGTCCGAAAGCGGTTCTGACGTGCAAATCGATCGCATGA
GCTGGGTATAGGGGCGAAAGACTAATCGAACCGTCTAGTAGCTGGTCCCTCCGAAGTTCCCTCAGGATAGCTGGAACCTCGCTCG---GAGAACGT----TGCT-
ATGGAAGAGTCTCATATGGTAAAGCAAAGCATTGGAGATCTTTGTGTGAGATGACGTAACCTACTCTGAACTTTAAATGGGTGAG-TCAGGGGCGGTGCTCGTACCTGCC---AAGCTCC-
ATGAGCAGCG--GGATCTATAGAGTCCAAGTGGGCCAATTT

Erythrothrips arizonae

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTG
AAATGGTGTAAACCGACGAGACCGGAAAGTCCGAATGGG-GGCATTCATGTTTCG---TCCG---GGGCGGTGCGCTTTC---GGGT-TCAGATGGTGCAGTTCG-GCTCGGGGCC-TCTC--GGGGCCTGAG---
TGCGGACCGTATCCACTCGTCTGGTTGG-TCGT-TTCCGTCACGGCGAGTGCATTTGTTT---CCTAGTAGGACGTCGCGACCCGTTGGGGATTTC---ACGTCGGCC---TGTGGCCGAGATGG-AGCCCG-
ATCCCGGGCGT-GC---GC-TTC-GGGC---CG-CGTGCG-GGTGTTC-GGAC---ACTC-GGTGACTGGCCGCCGACGGTAGC-AAAGATT-TGGGCGAGGGACCGCACAA--ATGTTGCGTTTGTAGTCTCT---
TGCGAGC-----TATCACTCGAACAGGTCCG-----CACCCGGTCAGCGGCGTACTGCTTTC[G T]G[A T]A-CTC[C G]TCCGACCCGTTT[A C G]T?ACATGTGCGCGAGTCAT[A G]GGGCTC-
ACGAAAC[CT]TAAAG[G C T][A G]AAATGAAAGTGAA---GGCT-ACGCATTGTG-----CTAA-GCCGAGGGAGGATGGTC-G--GTCCT---
GAGCGGCCGACCCGCACTCCCGGGGGCTCTCGATCTCT---
TGAGATGTGGCGCACCCAAAGCGTACACGTTGGGACCCGAAAGATGGTGAACATATGCCTGGCCAGGATGAAGCCAGGGGAAACCCTGGTGGAGGTCCGTAGCGATTCTGACGTGCAAATCGATCGTCCG
AGCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTTCCTCTGAAGTTCCCTCAGGATAGCTGGCGTTGAGAC---TGGACTTG-----
TGCGAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGCCGAAACGACCTAACCTATTCTCAAACCTTAAATGGGTGAGATCTCCGGC-TTGCTT---TGGTGAA[A G][C][A C]---[A G]G[A G T]AC-
-----AATT-GGATCA---AA[G T]TGCCGAGTGGGCCAATTT

Erythrothrips gemmatum

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTG
AAGTGGTGTAAACCGACGAGACCGGAAAGTCCGAATGAG-GAGATTTCATGTTTCG---TCCG---GGGCGGTGCGCTTTC---GGGT-TCAGATGGTGCAGTTCG-GCTCGGAGCC-TTTC--GGGGCCTGAG---
TGCGGAACGTATCCACTCGTCTGGTTCGTTCTCTGTCTCGGCGAGTGCATTTCTCC---TCTAGTAGGACGTCGCGACCCGTTGGGGATTTC---ATGTCGGTC---TGTGGCTCGAGTTGG-AGCCCG-
TACCCAGGCGA-GT---GC-TTC-GGGC---CG-CGTGCG-GGTGTTC-GGAC---CCTT-GATGACCTGGCCGCCGACCGTAGC-AAAGATT-TGGGCGAGGGACCGCACAA--ATGTTGCGTTTGTAGTCTCT---
TGAGGGC-----TATCACTCGAACAGGTCCG-----CACCCGGTCAGCGGCGTACTGCTTTCGGTA-CCTGCCGACCCTTCTTAACATGTGCGCGAGTCATTGGGCTC-
ACGAAACCTAAAGGCGAAATGAAAGTGAA---GGCT-GAGCACTTGTG-----CCGA-GCCGAGGGAGGATGGTC-G--GTCCT---GAGTGGCCGACCCGCACTCCCGGGGGCTCTCGATCTCAT---
TGAGATGTGGCGCACCCAGAGCGTACACGTTGGGACCCGAAAGATGGTGAACATATGCCTGGCCAGGATGAAGCCAGGGGAAACCCTGGTGGAGGTCCGTAGCGATTCTGACGTGCAAATCGATCGTCCG
AGCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTTCCTCCGAAGTTCCCTCAGGATAGCTGGCGTCA-TTC---CGGACGTG-----
AGACGAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGCCGAAACGACCTCAACCTATTCTCAAACCTTAAATGGGTGAGATCTCCGGC-TTGCTT---TGGTGAAAGCC---GGAGAC-----GATT-
GGATCA---GAGTGCCAAGTGGGCCAATTT

Franklinothrips vespiformis

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTG
GAACTGGTGAACCGGACGAGACCGGAAAGTCCGACGGAGTGCATTCAGTCCCG---GCGCGGCCCTCTTG--TGGT-TCAGATGGTGCAGTTCG-GCTCGG-GTACCCTCTGGGGTCTCGGGA--
TTCGATCTGATCCACTGTCATGTTGGTTTGTTCGTCGTCGGGGCGGCTGCATTTGTTCC--TCTGGTAGGACGTCGCGACCCGTTGGAGT-----TATCGGCC---[C T]ATGGCTCTGGGTGGAAGCCCG-
GTCCCGGGCGC-GTCTTGC-CTC-GTGTGCG-CGTGCG-GGTGTCC-GGACACCTTTG-GATGTCTGGCCGATGTCCGACGGTATC-AAAGATTT-CGGGCGAGGGACCGCACAA--ATGTTGCGTTTGCAGCCG--
---CAATGGC-----TACGACTCGAACAGGTCCG-----TCCCGGTCTGCGGCGCTTCTGC[A T]TTT[G A G]TA-CCCTTCC[CT]ACCCGCTTTCTAACATGTGCGCGAGTCAATGGGCTC-
ACGAAACCTAAAGGCGAAATGAAAGTGAA---GGCT-GAGCACTTGTG-----CT-ATGCCGAGGGAGGATGGTC-G--GTCCTTLAGAGTTTGGCCGACCCGCACTCCCGGGGCACTCGTTCTCAT-
-
CGAGATGAGGGCGCACCCAGAGCGTACACGTTGGGACCCGAAAGATGGTGAACATATGCCTGGCCAGGATGAAGTCAAGGGGAAACCCTGATGGAGGTCCGTAGCGATTCTGACGTGCAAATCGATCGTCCG
AGCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTTCCTCCGAAGTTCCCTCAGGATAGCTGGCGTACAATATT-CCGACTTG-----
AGACGAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGTCCGAAACGACCTCAACCTATTCTCAAACCTTAAATGGGTGAGAAACCCCGC-TTGCTT---AGGTGAAGCC---GCGGGAA---
ATTTATTAT-GGATCA---GTGTGCCAAGTGGGCCAATTT

Heterothrips australis

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTG
TCAGGTAAAACCGGTAGAGAACCGAATGTCCGAAAGCTGGGATTCAGGTTA---TCTC---GGCCGAGCGGCGTTG---CGCG-TGGGATGGTTACGATCT-ACTGGG-GCG--ACC--CGTC-----TGTT--
CTGAACTAACCCGTCG--GGCGTCAT-TCTCGTGGTGGTCTGCTGCTTCCCTGGGCTAGTAGGAGTTCGCGACCCGTTGGGGT-----TCGCCGT---AATGGCTGGCGTGGTAGACCG---TGGCGGGGC-
GG---GC-CTC-GTGC--CC-GTTCTG-CGTCCAC-GGACA---CTGTGATCGACCGTCCGACCCGACCGTCTC-AAAGAT---G-TGGGTAAAGGACCCGATCGCTGCGGCTGTTGACTC-----
-TGCTCGCACCGTCTCT-----TGTCCTGCTGTCGGCTCTGTTGCTTCCGTAACCTCGACCCGACCGCTTTCTAACATGTGCGCAAGTCAATGGGTG--TAAAACTAAAGGCGAAATGAAAGTAAA--
-AGGC-AAGCACTTGTG-----CTAAAGCCTTACGGGTGATGGGT-A--GTCCA----GTGTGGCTACCCGCAATCCGGGGGCTCCCGATCTCTC---
TGAGGTAGGGCGCACCTTGAAGCGACCTGTTGGTACCCGAAAGATGGTGAACATATGCCTGGCCAGGACGAAGCCAGGGGAAACCCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA

GCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTCCCTCCGAAGTTCCTCAGGATAGCTGTGCGACGAGGG--TGAATTGG-----
GTCAGAGTCCCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGACGAAACGCCCTCAACCTATTCTCAAACCTTAAATGGGTGTGATCCCCGGC-TTCTCT--AACCGAAGCC---GGGGCC-----AA--
GGATCTA--GTGTGCAAGTGGGCCAATTT

Heterothrips lewisi

AAACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATAACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAGAGTACGTGAAACTGC
TCAGGGTTAAGCGGTAGAGAACCGAATGTCCGAAAGCCTGGGATTCAGGTCTA--TCTC--TGCCGGACGGCGTAG--CTCG-CGAGATGTGTCAGTAG-GCCTGG-GCA--ACC--GGGTC-----GCGC--
CTGTGCGACTCCGAGA--AGCGTGCAC-TCTCGGTAGGGTGGTCTGCATTTCCTCCGGGCTAGTAGGAGGTTCGCGACCCGTTGGGGT-----TTGCCGT--AATGGCCTACGGTGGTAGACC-----C-GG--
CG-CGT-TCGT--AC-GAATGA-CGTCCGT-GGACA--CTGTGGTTGACCGTACCGGCACCCGACGGTCTC-AAAGA--TGGGTAAAGGATCGCGCAACCGCTCGCGTGTCTTGACTC-----
TGTCTCGCACCGTCTCT-----GGTCCCCTGTCTGCGGCTGTGTCTCCGGTACCTCGACGCCCTTTCTAACATGATCGCAAGTTCATTGGGTG--TTAAAACCTAAAGGCGAAATGAAAGTAAA--
GGGC-GAGCACTTGTG-----CGAGACCTTTTCGGGTGATGGGT-A-GTCCA-----GTGTGGTACCCTGCAACCCGGGGCGTCCCCGATCTCTC--
CGAGATAGGGGCGCACCTTGAGCGTACCTGTTAGTACCGAAAGATGGTGAACATATGCTTGGCCAGGACGAAGCCAGGTGAAAACCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA
GCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTCCCTCCGAAGTTCCTCAGGATAGCTGGCGCACGAGGG--CGAATTGG-----
GTCAGAGTCTCATCTGGTAAAGCGAATGATTAGAGGCCCTTGGGGCGAAACGCCCTCAACCTATTCTCAAACCTTAAATGGGTGTGATCCCCGGC-TTACTT--AACTGAGGCC---GGGGCC-----AA--
GGATCCA--GTGTGCAAGTGGGCCAATTT

Heterothrips sp.2

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAGAGTACGTGAAACTGC
TCTGGTGAAGCGGTGGAGAACCGAATGTCCGATGGCAAGGGATTTCAGGTCTA--TCTC--GGCCGGACGGCGTTG--CTAG-CGAGATGAGGCCGACT-CCCCGG-CTT--GCC--GGTGT-----
GTGTGCGAGCTTACTCCGTGT--AGCGTCGATATCTCGGTGGTGGTCTGCATTTCAGTGGCAGTGGAGGTCGCGACCCGTTGGGGAT----ATCGCCGGT--AATGGCTACGGTGGCAGACCG--
TGGCGGGTGC-GG--GC-TTC-GTGC--CC-GCACGT-CGTCCG-CGAC--CCGTGATCGACCGTACCGGCACCCGACGGTCTC-AAAGATAA-TGGGTAAAGGGCCGCGCATCGC-TCGCGTCTTGACTT-----
-----TGTCTCGGACCGGCC??TCTAACATGTGCGCAAGTCTATTGGGTGA-ATAAACCTAAAGGCGAAATAAAGTGA--
GGGC-AAGCACTTGTG-----CCAAAGCCTAGGGGTGATGGGT-AC-GTCCA-----GCGTGGCTGCCTCGCAACCCCGGGGGCGTCTCGATCTCTC--
TGAGATGGGGGCGCACCTTGAGCGCACCTGTTGGTACCCGAAAGATGGTGAACATATGCTTGGCCAGGACGAAGCCAGGGGAAACCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA
GCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTCCCTCCGAAGTTCCTCAGGATAGCTGGTGTCTCGAGGG--CGAGTTGG-----
GTCAGAGTCCCATCTGGTAAAGCGAATGATTAGAGGCCCTTGGGGCGAAACGCCCTCAACCTATTCTCAAACCTTAAATGGGTGTGATCCCCGGC-TTACTT--GAGTGAAGCC---GGGGCC-----AA--
GGATCTA-TGAGTGCCAAGTGGGCCAATTT

Heterothrips paulistarum_Itirapina

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATAACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAGAGTACGTGAAACTGC
TCAGGTGCAAGCGGTGGAGAACCGAATGTCCGATGGCAAGGGATTTCAGGTCTA--TCTC--GTCCGGACGGCGTTG--CTAG-TGAGATGAGGCCGACT-CCCCGG-CTC--GCC--GGTGC-----
GTGTGCGAGCTTACTCCGTGT--AGCGTCGATATCTCGGGCGGGTGGTCTGCATTTCAGTGGCAGTGGAGGTCGCGACCCGTTGGGGGT-----TCGCCGT--AATGGCTTGGGTGGCAGACCG--
TGGCGGGTGC-GG--GC-TTC-GTGC--CC-GTACGT-CGTCCG-GGAC--CCGTGATCGACCGTACCGGCACCCGACGGTCTC-AAAGATTT-TGGGTAAAGGACC CGCATCGCGTGCCTTGACTCA-----
-----TGTCTCGACCGTCTCT-----GGTCCCCTGTCTGCGGCTCTGTGTCTCCGGCACCTCGACCCGACCCCTTCTAACATGTGCGCAAGTCTATTGGGTGA-
GTAAAACCTAAAGGCGAAATAAAGTAAA---GGGT-AGGCACCTTGTG-----CTAAAACCTAGGGGTGATGGGC-AC-GTCCA-----GCGTGGCTGCCTCGCAACCCCGGGGGCGTCTCGATCTCTC--
TGAGATGGGGGCGCACCTTGAGCGCACCTGTTGGTACCCGAAAGATGGTGAACATATGCTTGGCCAGGACGAAGCCAGGGGAAACCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA
GCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTCCCTCCGAAGTTCCTCAGGATAGCTGGTGTCTCGGTGG--CGAATTGG-----
GTCAGAGTCCCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGACGAAACGTCTCAACCTATTCTCAAACCTTAAATGGGTGTGATCCCCGGC-TTACTT--GAGTGAAGCC---GGGGCC-----AA--
GGATCTA-TGAGTGCCAAGTGGGCCAATTT

Heterothrips paulistarum_Campinas2

????????????????????TCTAGGCTAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAGAGTACGTGAAACTGCTCAGGTGTA
AGCGGTGGAGAACCGAATGTCCGATGGCAAGGGATTTCAGGTCTA--TCTC--GTCCGGACGGCGTTG--CTAGTCGAGATGAGGCCGACT-CCCCGG-TTC-GTCC--GGTGC-----
GTGTGCGAGCTTACTCCGTGT--AGCGTCGATATCTCGGGCGGGTGGTCTGCATTTCAGTGGCAGTGGAGGTCGCGACCCGTTGGGGTT-T--TTTGGCGGT--AATGGCTTACGGTGGCAGACCG--
TGGCGGGTGC-GG--GC-TTC-GTGC--CCTGTACGT-CGTCCG-CGAC--CCGTGATCGACCGTACCGGCACCCGACGGTCTC-AAAGATTT-TGGGTAAAGGACC CGCATCGCGTGCCTTGACTC-----
-----TTT??TCTAACATGTGCGCAAGTCTATTGGGTGA-GTAAAACCTAAAGGCGAAATTAACGTAAA---GGGT-
AGGCACCTTGTG-----CTAAAACCTAGGGGTGATGGGC-TTAGTCCA-----GCGTGGCTGCCTCGCAACCCCGGGGGCGTCCCGATCTCTC--
ACGAGATGGGGGCGCACCTTGAGCGCACCTGTTGGTACCCGAAAGATGGTGAACATATGCTTGGCCAGGACGAAGCCAGGGGAAACCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTG
GAGCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTCCCTCCGAAGTTCCTCAGGATAGCTGGTGTCTCGGTGG--CGAATTGG-----
GTCAGAGTCCCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGACGAAACGTCTCAACCTATTCTCAAACCTTAAATGGGTGTGATCCCCGGC-TTACTT--GAGTGAAGCC---GGGGCC-----AA--
GGATCTA-TGAGTGCCAAGTGGGCCAATTT

Heterothrips paulistarum_Campinas

[AC][AG]A[AC]CT[AT]A[AG][GT][GT]GG[GT][GT]G[GT][AT]AA[AC]T[CT]C[AC]TCT[AT]AGGCT[AT]AATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTT
GAAGAGAGAGTTCAGAGTACGTGAAACTGCTCAGGTGTAAGCGGTGGAGAACCGAATGTCCGATGGCAAGGGATTTCAGGTCTA--TCTC--GTCCGGACGGCGTTG--CTAG-TGAGATGAGGCCGACT-
CCCCGG-CTT--GCC--GGTGT-----GTGTGCGAGCTTACTCCGTGT--AGCGTCGATATCTCGGGCGGGTGGTCTGCATTTCAGTGGCAGTGGAGGTCGCGACCCGTTGGGGGT-----TCGCCGT--
AATGGCTTGGGTGGCAGACCG--GGCGGGTGC-GG--GC-CTC-GTGC--CC-GTACGT-CGTCCG-GGAC--CCGTGATCGACCGTACCGGCACCCGACGGTCTC-AAAGATAT-
TGGGTAAAGGACC CGCATCGCGTGCCTTGACTC-----TGTCTCGCACCGTCTCT-----
GGTCCCCTGCTCTGCGGCT[CT]TTT[GT]G[CT]TTCCGG[AC][AC]CC[CT]C[AG][AC]C[CG][AG]ACCC[GT][CT][CT]T[GT]TCT?ACATGTGCGCAAGTCTATTGGGTGA-
GTAAAACCTAAAGGCGAAATAAAGTAAA---GGGT-ATGCACCTTGTG-----CTAAAACCTAGGGGTGATGGGT-AC-GTCCA-----GCGTGGCTGCCTCGCAACCCCGGGGGCGTCTCGATCTCTC--
TGAGATGGGGGCGCACCTTGAGCGCACCTGTTGGTACCCGAAAGATGGTGAACATATGCTTGGCCAGGACGAAGCCAGGGGAAACCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA
GCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTCCCTCCGAAGTTCCTCAGGATAGCTGGTGTCTCGGTGG--CGAATTGG-----
GTCAGAGTCCCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGACGAAACGTCTCAACCTATTCTCAAACCTTAAATGGGTGTGATCCCCGGC-TTACTT--GAGTGAAGCC---GGGGCC-----AA--
GGATCTA-TGAGTGCCAAGTGGGCCAATTT

CTAAAGGCCGACGTAAAGTGAA---GTCC-CAGGGACTCAGGGGCGCTCGCGCTCTCTCC-
CGTTCGGGACTGTGGTGTATGGTC-G--GCGCTGCATC-CGCATCCGATTTCGCAACCACGGGATGTCGTTGTCTCGC---
CGAGACTAGATGCTCCTGAGCGTACATGTTGGTACCCGAAAGATGGTGACCTATGCTTCCGAGCGAAGTCAAGGAAACCCTGATGGAGGTCGAAGCGGTTCTGACGTGCAAATCGATCGCATGA
GCTGGGTATAGGGGCGAAAAGACTAATCGAACCCTAGTAGCTGGTTCCTCCGAAGTTTCCCTCAGGATAGCTGGAACCTCGCTCG---GAGAACGT-----
TGCTAATGAAAGAGTCTCATATGGTAAAAGCAAACGATTTGGAGATCTTTGTGTCGAGATGACGTAACCTACTCTCGAACTTTAAATGGGTGAGATGAGGGGCGGTGCCTAGTCACCCGCCCC--
GAGCTCTT-ACGAGCAGCG--AGATCTATAGAGTCCAAGTGGGCCATTT

Heliethrips haemorrhoidalis_USA

TCTAGCATGTGCGCAAGTTCATGAGGT---GTTAAACCTAAAGGCCAAGTAAAGTGAA---GTCC-
CCGAGACTCAGGGGCGCTTGCAGTCTCTCTCTGTGGGACTGGGGTGTAGGGTTCG--GCGCTGCTTACGCACTCCGACCCGCAACCCGCGGATGTCACGTCTCGT---
TGAGACCCGATGTCTCTGAGCGTACATGTTGGTACCCGAAAGATGGTGACCTATGCTTGGCCAGGACGAAGTCAAGGGAAACCCTGATGGAGGTCGAAGCGGTTCTGACGTGCAAATCGATCGCATGA
GCTGGGTATAGGGGCGAAAAGACTAATCGAACCCTAGTAGCTGGTTCCTCCGAAGTTTCCCTCAGGATAGCTGGAACCTCGATCG---GAGAACGT-----TGAT-
GAAAAAGAGTCTCATATGGTAAAAGCAAACGATTTGGAGATCTTTGTGTCGAGATGACGTAACCTACTCTCGAACTTTAAATGGGTGAGACTAGGGACGGTGCCTCGTACCCGGTCCCGCTGAGCTTTTTAT
AAGCAACGT-GGATCTATAGAGCTCCAAGTGGGCCATTTT

Heliethrips haemorrhoidalis_Brazil

TCTAGCATGTGCGCAAGTTCATGAGGT---GTTAAACCTAAAGGCCAAGTAAAGTGAA---GTCC-
CCGAGACTCAGGGGCGCTTGCAGTCTCTCTCTGTGGGACTGGGGTGTAGGGTTCG--GCGCTGCTTACGCACTCCGACCCGCAACCCGCGGATGTCACGTCTCGT---
TGAGACCCGATGTCTCTGAGCGTACATGTTGGTACCCGAAAGATGGTGACCTATGCTTGGCCAGGACGAAGTCAAGGGAAACCCTGATGGAGGTCGAAGCGGTTCTGACGTGCAAATCGATCGCATGA
GCTGGGTATAGGGGCGAAAAGACTAATCGAACCCTAGTAGCTGGTTCCTCCGAAGTTTCCCTCAGGATAGCTGGAACCTCGATCG---GAGAACGT-----TGAT-
GAAAAAGAGTCTCATATGGTAAAAGCAAACGATTTGGAGATCTTTGTGTCGAGATGACGTAACCTACTCTCGAACTTTAAATGGGTGAGACTAGGGACGGTGCCTCGTACCCGGTCCCGCTGAGCTTTTT--
TAAGCAACGT-GGATCTATAGAGCTCCAAGTGGGCCATTTT

Heterothrips striatus

TCTAACATGTGCGCAAGTTCATTGGGTGA-TGAAAACCTAAAGGCCGAAATAAAAGTGAA---GGAC-ACGCACCTTGTG-----
CTAAAGTCCTAGGGGTTGATGGGC-GT-GTCTCT-----GTGTGGCCGCCTCGCAACCCCGGGCGGTTCCGATCTCTC--
CGAGATGGGGCGCACCTTGAGCGCACCTGTGTTGGTACCCGAAAGATGGTGAACCTATGCTGGCCAGGACGAAGCCAGGGGAAACCCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGG
AGCTGGGTATAGGGGCGAAAAGACTAATCGAACCCTAGTAGCTGGTTCCTCCGAAGTTTCCCTCAGGATAGCTGGTGTCTGGGGG---CGAATTGG-----
GTCAGAGTCCCATCC[AG]GT??AGCGAATGATTAGAGGCCTTGGGGGCGAAACGCCCTCAAC??TTCTCAAACTTTAAATGGGTGTGATCCCGGC-
CTTAAC??

Heterothrips flavitibia

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATGACCACGAGACCCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTGC
TCAGGTGTAAGCGGTGGAGAACGGAATGTCCGATGGCAAGGGATTACAGGTTA---TCTC---GGCCGGACGGCGTTG---CTAG-CGAGATGAGGCGGACT-CGCCGG-GCTCGCCC--GGTGT-----
GTGTTCGCAGTCTTACTCCGTGT--AGCGTCGATATCTCGGTCGGGTGGTCTGCATTTCCAGTGTCTAGTAGGAGGTTCGCACCCGTTGGGGT-----TCGCCGT--AATGGCTTGCGGTGGCAGACCG--
TGGCCGGTGC-GG---GC-CTC-GTGC--CC-GTACGT-CGTCCG--GGAC---CCGTGATCGACCGTACCCGACCCGACCGGTTCT-AAAGA-TA-TGGGTAAAGGACCCGCGATCGCTGCGTGCCTTGACTT-----
-----TGTCCTGCACCCGCTCT-----GGTCCCTCGTCTGCGGCTGTGCTTCCGACCTCGACCCGACCCGCTTTCTAACATGTGCGCAAGTCAATTGGTGA-
GTAAAACCTAAAGGCCGAAATAAAAGTAAA---GGCC-ACGCACCTGTG-----CTAAAGCCCTAGGGGTGATGGGT-AC-GTTCA-----GTGTGGTGCCTCGCAACCCCGGGGCGTCCCGATCTCTC--
TGAGATGGGGGCGACCTTGAGCGCACCTGTGGTACCCGAAAGATGGTGAACATATGCTTGGCCAGGACGAAGCCAGGGGAAACCCTGGTGGAGGTCCGTAACGGTTCGACGTGCAAATCGATCGTTGG
AGCTGGGTATAGGGGCGAAAAGACTAATCGAACCCTAGTAGCTGGTTCCTCCGAAGTTTCCCTCAGGATAGCTGGTGTCTGGAGT---CGAATTGG-----
GTCAGAGTCCCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGGCGAAACGCCCTCAACCTATTCTCAAACTTTAAATGGGTGTGATCCCGGC-TTACTT---GAGTGAAGCC---GGGGCC-----AA--
GGATCTA-TGAGTGCCAAGTGGGCCATTTT

Heterothrips sp.1

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATGACCACGAGACCCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAACTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTGC
TCTGGTGCACCGGTGGAGAACGGAATGTCCGATGGCAAGGGATTACAGTCCA---TCTC---GGCCGGACGGCGTTG---CTAG-CGAGATGAGGCGGGTGC-CCCGCG-CTT-GCC--GGTGT-----
GTATCGCAAGTCTTACTCCGTGT--AGCGTCGATATCTCGGTCGGGCTGCTGCATTTCCAGTGTCTAGTAGGAGGTTCGCACCCGTTGGGAC-----CCGGT---AATGGCTTGCGGTGGCAGCCG-----
----CTC-GAAC--CT-CCGTGT-T-CTTGC-GGAC---CCGTGATCGACCCGTACCCGGACCCGACGGTCTC-AAAGA-TA-TGGGTAAAGGACCCGCGCATCGCTGCGTGCCTTGACTT-----
GTTCTCGACCCGTCCT-----GGTCCCGCTGCGGCTGTGCTTCCGGCACCTCGACCCGCTTCTAACATGTGCGCAAGTCAATTGGGTGA-TGAAAACCTAAAGGCCGAAATAAAAGTGAA-
--GGAC--C--ACTTGTG-----CTAAAGTCTAAGGGGTGATGGGG-GT-GTCTCT----GTGTGGCCGCTCGCAACCCCGGGGCGTTCGATCTCTC--
CGAGATGGGGGCGCACCTTGAGCGCACCTGTGGTACCCGAAAGATGGTGAACATATGCTTGGCCAGGACGAAGCCAGGGGAAACCCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGG
AGCTGGGTATAGGGGCGAAAAGACTAATCGAACCCTAGTAGCTGGTTCCTCCGAAGTTTCCCTCAGGATAGCTGGTGTCTGGGGG---CGAATTGG-----
GTCAGAGTCCCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGGCGAAACGCCCTCAACCTATTCTCAAACTTTAAATGGGTGTGATCCCGGC-TTACTT---GAGTGAAGCC---GGGGCC-----AA--
GGATCTA-TGAGTGCCAAGTGGGCCAATTT

Heterothrips sp.

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAAATAACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAAGAGTACGTGAAAAGTGC
TCAGGGTTAAGCGGTGGAGAACGGAATGTCCGAAAGCCTGGGATTCAGGTCTA--CTTT---GCCGGACGGCGTAT--CTCG-CGAGATGTGTACAGTAG-GCCCGG-GAG--ACC--GGGTC-----GCGC--
CTGTCCGACTTCGAGA--AGCGTCGAC-TCTCGGTAGGGTGGTCTGCATTTCCCGGGCTAGTAGGAGGTCCGCAACCGCGTTCGCTGACCA-----C-GG---CG-
CGT-TCGT--TA-GAATGT-TGTCCGT-GGACA--CTGTGATTGACCGTACCGGCACCCGACGGTCTC-AAAGA----TGGGTAAAGGATCGCGCAACCGCGTTCGCTGACCA-----
AGTCTCGCACCGGTCTCT-----TGTCCTCTGTCTGCGGCTCTGTTGCTTCCGGTACCTCGACCGACCGCTTTTCTAACATGTACGCAAGTC[A C][C T][A T][G][A G][C G][A T][G]--TTAAACCTAA[A G][A
G]JGCGAAATGAAAGTGAA--GGGC-TTGCACCTGTG-----CGAGACCTTTCGGGTGATGGGT-A-GTCTCT---GTGTGGTACCTCGCAACCCGGGGCGTCCCGATCTCTC--
CGAGATAGGGCGCACCTTGAGCGTAACCTGTTAGTACCCGAAAGATGGTGAACATATGCCTGGCCAGGACGAAGCCAGGTGAAAACCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA
GCTGGGTATAGGGGCGAAAAGCTAATCGAACCATCTAGTAGCTGGTTCCCTCCGAAGTTTCCCTCAGGATAGCTGGCGCACGAAG--CGAATTGG-----
GTCAGAGTCTCACCCGGTAAAGCGAATGATTAGAGGCCTTGGGGGCGAAACGCCCTCAACCTATTCTCAAACCTTTAAATGGGTGAGAAGTCCCGG-C-TTACTT---GACTGAAGCC---GGGGCC-----AA--
GGATCCA--GTGTGCCAAGTGGGCCAATTT

Hydatothrips sp.

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAAATAACAACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAAGAGTACGTGAAAAGTGC
AGGTGGTGTAAACCGGACGAGATCGAAAAGTCCGAATGAG-GACACTCAAGTTCA--TCCG--TGCCGGT-GGCCTCT--GGGT-TCAGATGGTGTGGACT-GCTCGG-GCC-TCTC--GGGGCGCCGGG--
TTTGCTCCTCATTCACTCGTCT-AGGGGTATCT-GTCCGGTGGGTGTGCTGCACTTGTCC--TCTAGTAGGACGTCGCGACCCGTTGGGAA----GTTCTGATC--TTATGGCCCACGGTGG-AGCCCG-
TGCCCGAGCGT-C-----G-TTT-CGGC--GT-CGTTGC-GGTGTG-C-GGAC---CCGA-GGTGACCTGATTGGCGCCGACGGTATC-AAAGC---TTGGGAAGGAACCGCACAG-AGGTTGCGTCCGACGCCCG--
TAACGGG-----CTACACTCGGACAGGTTG-----TACCCGGTCAGCGGCGCTACTGCTTTC[G T]ATA-
CTCGTCCGACCCGTTTCTAACATGTGCGGAGTCAATTGGCTTCGCAAAACCTAAAGGCGAAATGAAAGTGAA---GGCC-ATGCCCTTGGG-----CTGGTGTGAGGGGTGATGTCC-G--
TTCCTT---AACCGGGCGGACCGCAACCCCGGGGCGTCTCATTCTCT---
TGAGAAAGTGGCGCACCCAGAGCGCACACGTTGGGACCCGAAAGATGGTGAACATATGCCTGGCCAGGACGAAGTCAGGGGAAACCTGATGGAGGTCCGTAGCGATTCTGACGTGCAAATCGATCGTCCG
AGCTGGGTATAGGGGCGAAAAGCTAATCGAACCATCTAGTAGCTGGTTCCCTCCGAAGTTTCCCTCAGGATAGCTGGCGCTCGGAG-----
GAAAAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGGCGAAACGACCTCAACCTATTCTCAAACCTTTAAATGGGTGAGAAGTCCCGG-C-TTACTT---AGGTGAAGCC---GCGAGA-----ACT-
GGATCA--GAGTGCCAAGTGGGCCAATTT

Lenkothrips sensivus

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAAGAGTACGTGAAAAGTGC
TCTGTGCAAGCGGTGGAGAACGGAATGTCCGATGGCAAGGGATTCAGGTCTA--TCTC--GGCCGGACGGCGTCG--CTAG-CGAGATGAGGCGGACTTACCCGG-TTC--GCC--GGTGT-----
GCGTCCGAGTCTACTCCGTGT--GGTGTGAT-TCTCGGTGGGTGGTGTGCAATTTCCAGTGTAGTAGGAGGTCCGCAACCGCGTTCGCTGACCA-----TCGCCGT---AATGGCTTACGGTGGCAGACCG--
TGCCGGGCGC-GG---GC-CTCGTTGC--CC-GTGGT-CGTCCG-C-GGAC--CCGTGATCGACCGTACCGGCACCCGACGGTCTC-AAGGA-TA-TGGGTAAAGGACCGCGCATCGCTCGCGTGC--GTTTC-----
-----AATCTCGCACCGGTCTCT-----GGTCCCTCGTCTGCGGCTCTGTTGCTTCCGGCA-CTCGAC?GACCCGCTTTCTAACATGTGCGCAAGTCATTGGGTGA-
ATAAAACCTAAAGGCGAAATAAAAGTGAA---GGAC-AAGCACTTGTG-----CCAAAGTCTAGGGGTGATGGGT-AC-GTCCA----CGGTGGCTGCCTCGCAACCCCGGGGCGTTCGATCTCTC--
TGAGATGGGGCGCACCTTGAAGCGACCTGTTGGTACCCGAAAGATGGTGAACATATGCCTGGCCAGGACGAAGTCAGGGGAAACCTGATGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA
GCTGGGTATAGGGGCGAAAAGCTAATCGAACCATCTAGTAGCTGGTTCCCTCCGAAGTTTCCCTCAGGATAGCTGGTGTCTGAGGG--CGAGTTGG-----
GTCAGAGTCCCATCTGGTAAAGCGAATGATTAGAGGCCTTGGGGGCGAAACGCCCTCAACCTATTCTCAAACCTTTAAATGGGTGTGATCCCGG-C-TTACTT---GGGTGAAGCC---GGGGCC-----AA--
GGATCTA-TGAGTGCCAAGTGGGCCAATTT

Lenkothrips kaminskii

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAAGAGTACGTGAAAAGTGC
TCAGGTGTAAGCGGTGGAGAACGGAATGTCCGATGGCAAGGGATTCAGGTCTA--TCTC--GGCCGGACGGCGTCG--CTAG-CGAGATGAGGCGGACT-CCCGGGCTCGTCCC--GGTGC-----
GTGTCCGAGTCTACTCCGTGC--GGTGTGAT-TCTCGGTGGGTGGTGTGCAATTTCCAGTGTAGTAGGAGGTCCGCAACCGCGTTCGCTGACCA-----TCGCCGT---AATGGCTTACGGTGGCAGACCG--
TGCCGGGCGC-GG---GC-CTGTGC--CC-GTGGT-CGTCCG-C-GGAC--CCGTGATCGACCGTACCGGCACCCGACGGTCTC-AAAGA-TA-TGGGTAAAGGACCGCGCATCGCTCGCGTGC--GTTTC-----
-----AATCTCGCACCGGTCTCT-----TGTCCTCTGTCTGCGGCTCTGTTGCTTCCG????????????????TCTAACATGTGCGCAAGTCATTGGGTGA-
ATAAAACCTAAAGGCGAAGTAAAGCGAA---GGAC-AGGCACTTGTG-----CTAAAGTCTAGGGGTGATGGGC-AC-GTCCA----CGGTGGCTGCCCCGAACCCCGGGGCGTTCGATCTCTC--
CGAGATGGGGCGCACCTTGAGCGCACCTGTTGGTACCCGAAAGATGGTGAACATATGCCTGGCCAGGACGAAGTCAGGGGAAACCTGATGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA
GCTGGGTATAGGGGCGAAAAGCTAATCGAACCATCTAGTAGCTGGTTCCCTCCGAAGTTTCCCTCAGGATAGCTGGTGTCTGAGGG--CGAGTTGG-----
GTCAGATCCCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGGCGAAACGCCCTCAACCTATTCTCAAACCTTTAAATGGGTGTGATCCCGG-C-TTACTT---GAGTGAAGCC---GGGGCC-----AA--
GGATCTA-[A T]GAGTGCCAAGTGGGCCAATTT

Microcephalothrips abdominalis

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAAGAGTACGTGAAAAGTGC
AGCTGATGAAAGCGGACGAATCGAAAAGTGCGAACAGAGTTGACTACGCTGA---CCTCCG-AGGCAGGCTGGGTGC--GGGA-CGGTGCACACGCGGCT-CCTCGC-----GGGTCTTTGC--
GTCGCTCCTTCTCAGCCCT-----GTCCGAGGGGGGACGCTGCACTTCTG---CTTAGTAGCACGTCGCGGCTCGTTGGGAG-----CCGTTCT---TAAGGCTCGGGTGG-AGCCTT-----CAC-----
---CT-----TGTGTGT-TGAC--CCGC-AGTGTCCCGATCGGCACCCGACGGTGT-GTACAGGC-GGGGCTCTAGTCTGATC--CCAGTATACATGAGG-----AGCATCAGACCGGTCCC--
-----GCCCGTCCGCGGCTTCTGCTTTCGATC--CTGTCCGACCCGCTTTTCTAACATGTGCGGAGTCAATTGGGCTC-ACGAAACCTAAAGGCGAATGAAAGTAAA---GGGC-GAGTTTA-----
-----CTGCTCTAGGGGTGATGGCC-G-CGTA-----ACCATCCGACCCGCAACCCGGGCGCTCATTCTCT---
TGAGAAAGAGGTGCACCTTGAGCGCACACGTTGGTACCCGAAAGATGGTGAACATATGCCTGGCCAGGGTGAAGTCAGGGGAAACCTGATGGAAGCCCGTAGCGATTCTGACGTGCAAATCGATCGTTCAG
AGCTGGGTATAGGGGCGAAAAGCTAATCGAACCATCTAGTAGCTGGTTCCCTCTGAAGTTTCCCTCAGGATAGCTGGCATTCTGA-----
GATAAAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCTTGGGGTCCGAAACGACCTCAACCTATTCTCAAACCTTTAAATGGGTGAGAAGTCCCGG-C-TTACTT---AAGTGAAGCC---ACGAGTT-----CCATC-
GGATTTA-TGAGTGCCAAGTGGGCCAATTT

Neohydatothrips sp.

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAAATAACAACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAAGAGTACGTGAAAAGTGC
AGGTGGTGTAAACCGGACGAGATCGAAAAGTCCGAATGGG-GACACTCAAGTTCA--TCCG--TGCCGGT-GGCCTCT--GTGT-TCAGATGGTGCAGGACT-GCCCGG-GCC-TTTC--GGGGCGCCGGG--
TTTGTCCGCATTCACCTCGTCTC-AGGGGTATCT-GTCCGGTGGGTGTGCTGCACTTGTCC--CCTAGTAGGACGTCGCGACCCGTTGGAAT----GTTCCGATC--TTACGGCCCACGGTGG-AGCCCG-

TGCCCGAGCGT-C-----G-TTT-CGGC--GG-CGTTGC-GGTGTGC-GGAC---CCGA-GGTGACCCGGTCCGGCTCCGACGGTATC-AAAGC---TTGGGAAGGAACCCGCACAG-AGGATGCGTCCGATGCCCGT--
TTATCGGG-----CTACACTCGGACAGGTTTCG-----CACCCGGTCAGCGGCGCTACTGCTTTTCGATA-
CTCGTCCGACCCGTCTTTCT[AG]ACACG[AT]TGCGAGTCAATTGGGCT[CT]TGCGAAACCTAAAGGCGAAATGAAAGTGAA---GGCC-ATGCCCTTGGG-----CTGGTGCCTAGGGGTGATGTC-
G--TTCCTT---AACCGGGCGGACCCGCAACCCCGGGGCGTCTCATTCTCTC---
TGAGAAAGTGGCGCACACAGCATACACGTTGGGACCCGAAAGATGGTGAACATATGCTTGCCAGGACGAAAGTCAAGGGAAACCTGATGGAGGTCCGTAGCGATTCTGACGTGCAAATCGATCGTCCG
AGCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTTCCCTCCGAAGTTTCCCTCAGGATAGCTGGCGCTCGGAG-----
GAAAGAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGCCGAAACGACCTCAACCTATTCTCAAACTTAAATGGGTGAGAAGTCCGGC-TTGCTT---AGGTGAAGCC---GCGAGA-----ACT-
GGATCA--GAGTGCCAAGTGGGC[A C]ATTT?

Scirtothrips sp.

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATACAACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGTCTTGAAGAGAGAGTTCAAGAGTACGTGAAACTG
AGGTGGTGTAAACGGACGAGATCGAAAAGTCCGAATGGG-GAGATTCAAGCTTA--TCCG---TGCCGGT-GGCCGTG---GGGT-ACAGATGGTGCAGTCCG-GCCGGG-GCC-TCTC--GGGGTGCCCGG--
TTTGTCCGTATTCACTCGTCT-GGCGGTATCT-GTCTGGTGGCGGTGGGCTGCACCTTCTC--CCTAGTAGGACGTCGCGACCCGTTGGGAG----GTTCGGATC--TTATGGCCCCGTGGTGG-AGCCCA-
CGCCGAGCGG-TA---GG-CTT-GCTT--GC-CGTTGC-TGTGCAT-GGAC---CCG-GGTGACCTGATTGGCGCCGACCGGTATC-GAAGCA---TTGGGAAGGGACCCGCACAG-AGGTTGCGTCCGACGCCG---
CATCGGG-----CTACGCTCGGACAGGTTTCG-----CACCCGGTACGCGGCGCTACTGCTTTTCGATA-
CTCGTCCGACCCGTCTT[AT]GT[AG]ACATGTGCGGAGTCACTT[GT]GG[CG]TCTA[CT]GAAACC[CT]AAAGG[C G]GAAATGAAAGTGAA---GGCC-ATGCCCTTGGG-----
CTGGTGCCTAGGGGTGATGATC-G--TTCCTT---AACCGGG[C G]GGTCCGCAACCCCGGGGCGTCTCATTCTCTC---
TGAGAAAGTGGCGCACCCAGAGCGTACACGTTGGGACCCGAAAGATGGTGAACATGCGTGGCCAGGACGAAAGTCAAGGGAAACCTGATGGAGGTCCGTAGCGATTCTGACGTGCAAATCGATCGTCCG
AGCTGCGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTTCCCGTCCGAAGTTTCCCTCAGGATAGCTGGCGCTCGGGT-----
GACAGAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGCCGAAACGACCTCAACCTATTCTCAAACTTAAATGGGTGAGAAGTCCGGC-TTGCTT---AGGTGAAGCC---GCGAGAT-----[G
T]ATTTT-GGATCA---[A G]AGTGCCAAG[G T]GGGCCA[A T]TTT

Scutothrips nudus_ Itirapina

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATAACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGTCTTGAAGAGAGAGTTCAAGAGTACGTGAAACTGC
TCAGGTGAAAACGGTGGAGAACCGAATGTCCGAAAAGCTTGGGATTACGGTCTA--TCTC---GTCCGGACGGCGTTG--CTTG-TGTGATGTTTACAGTAG-GCTTGG-GAA--ACC--AGGTC-----GCGC--
CTGAAGCACTCCGTGT--AGCGTCGAC-TCTCGGTGGGTGGTCTGCATTCCCTGAGTAGTAGGAGGTCCGACCCGTTGGGGT-----TCGCCGT---AATGGCTTACGGTGGTAGACCG--TGGCGAGTGT-
GG---GC-CTC-GTGC--TC-GCGCGT-CGTCCAC-GGACA--CTGTGATTGACCGTACCGGTACCCGACGGTCTC-AAAGA---TGGGTAAGAAGAACCCGCACTGCGTCCGCTGCTTGACTT-----
CGTCTCGCACCGTCTCT-----GGTCCCCTGTCTGCGG[CG]GCTTGTGCT[G T]CCT????????????????TCTAACATGTGCGCAAGTCAATGGGTG--TTAAACACTAAAGGCGAAATGAAAGTAAA--
GGCC-AAGCACTTGTG-----CGAGACCTATCGGGTGTAGGGT-A--GTCCT----GTGTGGTACCTCGCAACCCGGGGCGTCCCGATCTCTT---
TGAGATAGGGCGCACCTTGAGCGTACATGTTGGTACCCGAAAGATGGTGAACATGCGCTGGCCAGGACGAAGCCAGGGGAAACCCCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA
GCTGGGTATAGGGGCGAAAAGACTAATCGAACCATCTAGTAGCTGGTCCCTCCGAAGTTTCCCTCAGGATAGCTGGTGCATGGGAA--AGATTTGG-----
GTCAGAGTACATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGCCGAAACGCCCTCAACCTATTCTCAAACTTAAATGGGTGTGATCCTCGGC-TTACTT---AACTGAAGCC---GGGGCC-----AA--
GGATCTA-TGTGTGCCAAGTGGGCCAATAT

Scutothrips nudus_Campinas

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATAACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGTCTTGAAGAGAGAGTTCAAGAGTACGTGAAACTGC
TCAGGTGAAAACGGTGGAGAACCGAATGTCCGAAAAGCTTGGGATTACGGTCTA--TCTC---GTCCGGACGGCGTTG--CTTG-TGTGATGTTTACAGTAG-GCTTGG-GCA--ACC--AGGTC-----GCGC--
CTGAAGCACTCCGTGT--AGCGTCGAC-TCTCGGTGGGTGGTCTGCATTCCCTGAGTAGTAGGAGGTCCGACCCGTTGGGGT-----TCGCCGT---AATGGCTTACGGTGGTAGACCG--TGGCGAGTGT-
GA---GC-CTC-GTGC--TC-GCGCGT-CGTCCAC-GGACA--CTGTGATTGACCGTACCGGTACCCGACGGTCTC-AAAGA---TGGGTAAGAAGAACCCGCAATGCGTCCGCTGCTTGACTT-----
TGTCTCGCACCGTCTCT-----GGTCCCCTGTCTGCGGCCCTGTTGCTTCCGGCACCTCGACCGACCCGCTTCTAACATGTGCGCAAGTCAATGGGTG--TTAAAACCTAAAGGCGAAATGAAAGTAAA--
GGGC-AAGCACTTGTG-----CGAGACCTTTCGGGTGTAGGGT-A--GTCCT----GTGTGGTACCTCGCAACCCGGGGCGTCCCGATCTCTT---
TGAGATAGGGCGCACCTTGAGCGTACATGTTGGTACCCGAAAGATGGTGAACATGCGCTGGCCAGGACGAAGCCAGGGGAAACCCCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA
GCTGGGTATAGGGGCGAAAAGACTAATCGAACCATCTAGTAGCTGGTCCCTCCGAAGTTTCCCTCAGGATAGCTGGTGCATGGGAA--AGATTTGG-----
GTCAGAGTACATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGCCGAAACGCCCTCAACCTATTCTCAAACTTAAATGGGTGTGATCCTCGGC-TTACTT---AACTGAAGCC---GGGGCCT-----AA--
GGATCTA-TGTGTGCCAAGTGGGCCAATAT

Selenothrips rubrocinctus

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??
TCTAGCATGTGCGCAAGTCAATGGGT--GTTAAACCTAAAGGCGCAACGAAAGTGAA---GTCC-
TCGAGACTCAGGCGCTCCTCGCTCCGTTGGGATGGGTGATGACC-G--GCGCTGCATC-CGCATCCGTTGGGTCGCAACCCCGGGATGTCGACGTCTCGC---
CGAGACCAGATGTCTCTGAGCGTACATGTTGGTACCCGAAAGATGGTGAACATGCGCTGGCCAGGACGAAGTCAAGGGGAAACCCCTGATGGAGGTCCGAAGCGGTTCTGACGTGCAAATCGATCGCATGA
GCTGGGTATAGGGGCGAAAAGACTAATCGAACCATCTAGTAGCTGGTCCCTCCGAAGTTTCCCTCAGGATAGCTGGAACCTCGCTCG---GAGAACGT----TGCT-
ATGGAAGAGTCTCATATGGTAAAGCAAACGATTGGAGATCTTTGTGTGCGAGATGACGTAACCTACTCTCGAACTTTAAATGGGTGAG-TCAGGGGCGGTGCTTTGTCAACAGCCCC---
AAGCTTTTATAAGCAGCG--GGATCTATAGAGCTCCAAGTGGGCCATTT

Stomatothrips flavus

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATACGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGGACTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTG
AAGTGGTGTAAACGGACGAGATCGAAAAGTCCGAATGGG-GAGATTGATGTTTCG---TCCG---TGGCGGTGCGCTTCT--GGGT-TCAGATGGTGCAGTCCG-GCTCGGGGGC--TCTC--GGGGGCTGGGA--
TTCGATCCGTATCCACTGCTCCCGTCCGTTCCGT-GTCCGTCGCGGACGCTGACTTCTC--CCTAGTAGGACGTCGCGACCCGTTGGGGTTTTCGAATCCGGCC---TGTGGCCCGAGGTCG-AGCCCG-
GTCCCGGCGT-G---GC-TTC--TGT--CA-CGTGCG-GGTGTCC-GGAC---CCTC-GGTGACCTGGCCGGCCGACCGTAGC-AAAGATT--TGGGCGAGGGACCCGACA--CTGTTGCGTTTGTGCGC-----
CGAGGC-----TACTACTCGAACAGGTCCG-----CACCCGGTACGCGGCGTACTGCTTTCT[G T]GTA-CTCGTCCGACCCGCT[G T][C T]TCTAACATGTACGCGAGTCAATGGGCTC-
ACGAAACCTAAAGGCGAAATGAAAGTGAA---GGCC-GTGCCTTTCG---CTAGTGCCGAGGGAGGATGGT-G--GTCCT----GAGCGGCCGACCCGCACTCCCGGGGCGTCTCGATCTCTC---
TGAGATGAGGGCGCACCTAGAGCGTACACGTTGGGACCCGAAAGATGGTGAACATGCGCTGGCCAGGACGAAGTCAAGGGGAAACCCCTGATGGAGGTCCGTAAGGTTCTGACGTGCAAATCGATCTTTGG

AGCTGGGTATAGGGGCGAAAGACTAATCGAACCATCTAGTAGCTGGTTCCCTCCGAAGTTCCCTCAGGATAGCTGGCGCTCATTTC---CGGACGTG-----
AGACGAGTCTCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGCCGAAACGACCTCAACCTATTCTCAAACTTTAAATGGGTGAGATCTCCGGC-TTGCTT---AGGTGAAGCC---GGAGAC-----GAAT-
GGATCA---GAGTGCCAAGTGGGCCAATTT

Heterothrips australis_Alto_Paraiso

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATAACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTGC
TCAGGTCAAAACGGTAGAGAACCGAATGTCCGAAAGCCTGGGACTCAGGTCTA---TCTC---GGCCGGACGGCGTTG---CGCG-TGGGATGGTTCACTCT-ACTGGG-GCG--ACC--CGGTC-----TGTT--
CTGATTCACCCCGTGC--GGCGTCGAT-TCTCGGTCCGGTGGTCTGCATTTCCCTGGGCTAGTAGGAGGTCGCGACCCGTTGGGGT-----TCGCCGT---AATGGCTTGCGGTGGTAGACCG--TGGCGGGGAC-
GG---GC-CTC-GTGC--CT-GTTCGT-CGTCCAC-GGACA--CTGTGATCGACCGTCCGGCCACCCGACGGTCTC-AAAGA--G-TGGGTAAAGGACCCGCGCATCGCGTCCGGTCTGACTC-----
-TGTCTCGACCCGGTCT-----TGTCCCGTGTCTGCGGCTGTGGTTCCTGAACCTCGACCCGACCCGCTTTCTAACATGTGCGCAAGTCATTGGGTG--TAAAAACCTAAAGGCGAAATGAAAGTAAA-
-GGGC-AAGCACTTGTG-----C--GAGCCTTACGGGTGTATGGGT-A--GTCCA----GTGTGGCTACCCCGCAATCCGGGGGCGTCCCGATCTCTC---
TGAGGTAGGGCGCACCTTGAGCGCACCTGTTGGTACCCGAAAGATGGTGAACATATGCTTGGCCAGGACGAAGCCAGGGGAAACCCCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA
GCTGGGTATAGGGGCGAAAAGACTAATCGAACCATCTAGTAGCTGGTTCCTCCGAAGTTCCCTCAGGATAGCTGTGCGACGAGGG--TGAGTTGG-----
GTCAGAGTCCCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGACGAAACGTCCTCAACCTATTCTCAAACTTTAAATGGGTGTGATCCCCGGC-TTCTCT---AACCGAAGCC---GGGGCC-----AA--
GGATCTA--GTGTGGCAAGTGGGCCAATTT

Heterothrips sp.3

AGACCTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTGC
TCAGGTGTAAGCGGTGGAGAACCGAATGTCCGATGGCAAGGGATTCAAGTCTA---TCTC---GTCCGGACGGCGTTG---CTAG-TGAGATGAGGCGGACT-GCCCGG-CTT-GCC--GGTGC-----
GTGTGCGAGTCTTACTCCGTGT--AGCGTCGATATCTCGGGCGGGTGGTCTGCATTTCCAGTGTCTAGTAGGAGGTCGCGACCCGTTGGGGT-----TCGCCGT---AATGGCTTACGGTGGCAGACCG--
TGGCGGGTGC-GG---GC-CTC-GTGC--CC-GTACGC-CGTCCGC-GGAC---CCGTGATCGACCGTACCCGGCACCAGCGGTCTC-AAAGA-TA-TGGGTAAAGGACCCGCGCATCGCGTCCGGTCTGACTT-----
-----TGTCCTGCACCCGGTCT-----GGTCCCTCGTCTGCGGCTCTGTGCTTCCGGCACCTCGACCCGACCCGCTTTCTAACATGTGCGCAAGTCATTGGGTGA-
GTAAAAACCTAAAGGCGAAATAAAAGTGAA---GGGT-AGGCATTGTG-----CTAAAAACCTAGGGGTGATGGGT-AC-GTCCA----GCGTGGCTGCCTCGCAACCCCGGGGCGTCCCGATCTCTC---
TGAGATGGGGCGCACCTTGAGCGCACCTGTTGGTACCCGAAAGATGGTGAACATATGCTTGGCCAGGACGAAGCCAGGGGAAACCCCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGGA
GCTGGGTATAGGGGCGAAAAGACTAATCGAACCATCTAGTAGCTGGTTCCTCCGAAGTTCCCTCAGGATAGCTGGTGTCTGAGGG--CGAGTTGG-----
GTCAGAGTCCCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGCGAAACGCCCTCAACCTATTCTCAAACTTTAAATGGGTGTGATCCCCGGC-TTACTT---GAGTGAAGCC---GGGGCC-----AA--
GGATCCA-TGAGTGCCAAGTGGGCCAATTT

Heterothrips sp_Porto Alegre

??AGCACACAAGT[AG]CCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTGCTCAGGTGTAAGCGGTG
AGAACGGAATGTCCGATGGCAAGGGATTCAAGTCTA---TCTC---GTCCGGACGGCGTTG---CTAG-TGAGATGAGGCGGACT-CCCCGG-CTC-GCCC--GGT[C T]-----GTGTCGAGTCTTACTCCGTGC--
AGCGTCGATATCTCGGCCGGGTGGTCTGCATTTCCAGTGTCTAGTAGGAGGTCGCGACCCGTTGGGGT-----TCGCCGT---AATGGCTTGCGGTGGCAGACCG--TGGCGGGTGC-GG--GCATTC-GTGC--
CC-GTACGT-CGTCCGC-GGAC---CCGTGATCG?CCGTACCCGGCACCAGCGGTCTC-AAAGATAT-TGGGTAAAGGACC?C?CAT[A C]?CGTCCGCTGCTTACTC-----
CGTCTCGACCCGGTCT-----GGTCCCTCGTCTGCG????????????????????????????????????TCTAACATGTGCGCAAGTCATTGGGTGA-GTAAAAACCTAAAGGCGAAATAAAAGTGAA---GGGT-
AGGCACTTGTG-----CTAAAACCCGAGGGGTGATGGGC-TA-GTCCA----GCGTGGCTGCCCGCAACCCCGGGGCGTCTCGATCTCTC---
CGAGATGAGGCGCACCTTGAGCGCACCTGTTGGTACCCGAAAGATGGTGAACATATGCTTGGCCAGGACGAAGCCAGGGGAAACCCCTGGTGGAGGTCCGTAACGCTTCTGACGTGCAAATCGATCGTTGG
AGCTGGGTATAGGGGCGAAAAGACTAATCGAACCATCTAGTAGCTGGTTCCTCCGAAGTTTCCCTCAGGATAGCTGGTGTCTGGTGG---CGAATTGG-----
GTCAGAGTCCCATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGCGAAACGCCCTCAACCTATTCTCAAACTTTAAATGGGTGTGATCCCCGGC-TTACTT---GAGTGAAGCC---GGGGCC-----AA--
GGATCTA-TGAGTGCCAAGTGGGCCAATTT

Frankliniella sp.

AGACTTAAGTGGGTGGTAAACTCCATCTAAGGCTAAATATGACCACGAGACCGATAGCACACAAGTACCGTGAGGGAAAGGTGAAAAGAAGCTTTGAAGAGAGAGTTCAAGAGTACGTGAAACTGA
AGTGGTGTAAACGACGAGTTTCGAAAAGTCCGAATGGT-GAGATTCAAGCTTA---CCG--TGCCGGT-GGCCCTT--GGGT-TCAGATGGCGTCTGCA-GCTCGG-GCT-TC-----GGTTCGG--
GTCATATGGCG-TCACCTGCTCT-GGGGGTATCT-GTCTGGTGGGTTGGGCTGCACTTCTCG--CCTAGTAGGACGTCGCGACCCGTTGGGAA----GTCCGTTCT---ACTGGCCCTCGGTGG-AGCCCG-
TGCCGGAGCGT-GG---CA-CTC-GTGC--CG-CGTTGCTGTTGCAC-GGAC---CCGG-GGTGACCTGATCGCGCCCCGACGGTATC-AAAGC---TTGGGAAGAGGCCGACAG-AGGATGCGTTGATGCCCG----
TTTCGGG-----CTACACTCGGACAGGCCTG-----CACCCGGTCAGCGCGCTTCTGCTTTT[G T]ATA-
CTCGTCCGACCCGCTTTCTAACA[CT]GTGCGCGAGTCAATTGGGCTGTG[CT]GAAAACCTAAAGGCGAAATGAAAGTGAA---GGCC-ACGCACTTGTG-----CTGGTGTCTAGGGGTGATGGTC-G-
TTCT-----ACACGGGCGGCCGCAACCCCGGGGCGTCTCGTTCTCT---
TGAGAAGTGGCGCACCCAGAGCGTACACGTTGGGACCCGAAAGATGGTGAACATATGCTTGGCCAGGACGAAGTCAGGGGAAACCCCTGATGGAGGTCCGTAGCGATTCTGACGTGCAAATCGATCGTCCG
AGCTGGGTATAGGGGCGAAAAGACTAATCGAACCATCTAGTAGCTGGTTCCTCCGAAGTTTCCCTCAGGATAGCTGGCGCTCA-----
TATAGATTTTATCCGGTAAAGCGAATGATTAGAGGCCCTTGGGGCGAAACGACCTCAACCTATTCTCAAACTTTAAATGGGTGAGAAGTCCGGC-TTGCTT---AGGTGAAGCC---GCGAGAC-----TCAC-
GAATCA---GAGTGCCAAGTGGGCCAATTT

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Supplementary material 4

Common morphological synapomorphies for the optimal trees obtained of the analysis of all evidence with the two alignment strategies employed.

Group	Common synapomorphies L-INS-i / Q-INS-i alignment	States transformation
Heterothripidae	Sensoria antennal segments III–IV (Ch 21)* Tergite X (Ch 81) Abdominal sternites posteromarginal comb of microtrichia / craspeda (Ch 96) [#] Forewing shape (Ch 111)*	Emergent --> linear Divided --> posterior half divided Absent --> lateral block Long almost parallel--> broad base
<i>Aulacothrips</i>	Antennal segment III coloration (Ch 18) Terminal antennal segments (Ch 29) Head cheeks (Ch 31) Head ocellar setae (Ch 33)* Ocellar setae III position (Ch 34) Relative position between ocellar setae III and anterior ocelli (Ch 35) Setae legs (Ch 45) Pronotum sculpture (Ch 50)* Pronotum sculpture (Ch 51)* Pronotum anterior ridge (Ch 54) Metasternum base (Ch 58)* Mesonotum sculpture pattern (Ch 62) Metanotum sculpture pattern (Ch 65) [#] Metanotum sculpture pattern (Ch 66) Campaniform sensila / posterior metanotal setae relative position (Ch 70)* Metasternum shape (Ch 73) Metasternal furca (Ch 76) Distance between hind coxae (Ch 78) Legs coloration (Ch 79)* Abdominal sternites posteromarginal comb of microtrichia / craspeda (Ch 96)* Metanotum sculpture pattern (Ch 67)*	Pale --> pale base Last three segments close --> last five segments close Straight --> with a notch behind the eyes Ocellar setae III longer than II --> ocellar setae II longer than III In front of eyes anterior border --> aligned with the eyes anterior border The base of the setae is outside of the diameter of the ocelli --> the base of the setae is on the edge of the ocelli diameter Pointed apex --> blunt apex Reticulate-striate --> reticulate Soft --> strong with soft reticulation in the center Absent --> present Concave --> straight Reticulate-striate --> reticulate Reticulate-striate --> reticulate Sculpture simple --> form a central triangle Sensila behind posterior setae --> sensila in front posterior setae Uniform --> central elevated triangle Touch median line of metasternum--> Do not reach the median line of metasternum Closely separated --> Widely separated Bicolor --> dark Continuous block --> lateral block Simple --> concentric
<i>Heterothrips</i> + <i>Scutothrips</i> + <i>Lenkothrips</i>	Abdominal sternite VII microtrichia (Ch 82)* Female sternite VII marginal setae (Ch 93) Sensoria on abdominal sternite VII (Ch 94)* Microtrichia abdominal tergite I (Ch 97) Microtrichia abdominal tergite (Ch 98) Abdominal sternites posteromarginal craspeda (Ch	Absent --> present All setae similar --> median setae more developed than lateral setae Behind the anteromarginal ridge --> in front of the anteromarginal ridge Absent --> lateral and posterior half of the tergite Absent --> lateral Without microtrichia --> with

	101)	microtrichia
<i>Group A</i>	Forewing coloration (Ch 112)#	Uniformly colored --> 1 pale band
	Abdominal sternites posteromarginal comb of microtrichia / craspeda (Ch 96)	Continuous scalloped blocks --> continuous regular comb of microtrichia
<i>Group B</i>	Abdominal tergites posterior margin (Ch 100)	Craspeda --> microtrichia
	Layout of discal setae on abdominal sternites IV-V (Ch 83)*	Continuous --> discal setae absent
<i>Scutothrips</i>	Female abdominal tergite I sculpture pattern (Ch 15)	Reticulate-arcuate --> reticulate simple
	Head cheeks (Ch 31)*	With a notch behind the eyes --> with a notch behind the eyes and neck constricted
	Pronotum sculpture (Ch 50)*	Reticulate-striate --> excavated
	Metanotum sculpture pattern (Ch 65)	Reticulate-arcuate --> reticulate simple
	Metanotum sculpture pattern (Ch 67)*	Concentric --> simple
	Metanotum microtrichia (Ch 72)	Complete --> outside central triangle
<i>Lenkothrips</i>	Metanotum shape (Ch 73)*	Uniform --> central elevated triangle
	Sensoria simple on antennal segments III–IV (Ch 23)	Transversal band around the apex of the segments --> transversal band around the apex with a loop on the sides
	Metanotum sculpture pattern (Ch 65)	Reticulate-striate --> striate
	Metanotum sculpture pattern (Ch 66)	Simple --> form a central triangle
	Female sternite VII marginal setae number (Ch 86)	4 --> 5
<i>(Bradinothrips williamsi + Panchaetothripinae) + Heterothripidae</i>	Interantennal projection (Ch 47)*	Arms closely separated --> arms widely separated
	Marginal setae position on female abdominal sternite VII (Ch 91)*	Next to the posterior margin --> not marginal
	Abdominal sternites posteromarginal comb of microtrichia / craspeda (Ch 96)*	Absent --> continuous block
<i>Aeolothripidae</i>	Male abdominal tergite I median ridge (Ch 14)*	Absent --> present
	Antennal segment I/II coloration (Ch 17)*	Dark --> pale apex
	Tentorial bridge (Ch 42)*	Absent --> present
	Mesopre-episternum (Ch 55)#	Longitudinal and transversal sutures present --> longitudinal suture present
	Metasternum base (Ch 58)*	Concave --> straight
	Metanotum anterior setae position (Ch 71)*	Lateral --> center-lateral
	Supernumeraries setae on abdominal sternite VII in females (Ch 88*)	Absent --> present
	Female abdominal sternite VIII (Ch 95)*	Completely reduced --> reduced to lobes on the posterior margin of sternite VII
	Forewing shape (Ch 111)*	Long almost parallel --> broad with crossveins
	Forewing (Ch 114)*	Longitudinal veins --> Crossveins
<i>Sericothripinae</i>	Ovipositor (Ch 116)*	Curved down --> Curved up
	Mesopre-episternum (Ch 55)#	Entire, or longitudinal and transversal sutures present --> longitudinal suture present
	Mesonotum sculpture pattern (Ch 62)	Reticulate-striate --> striate
	Metanotum sculpture pattern (Ch 65)	Reticulate-striate, or reticulate --> striate
	Metanotum setae (Ch 69)	Two pairs; one on the anterior border, one slightly behind --> Two anterior pairs
	Metapleura ornamentation (Ch 74)	With polygonal reticulation, or with irregular and elongated reticules --> with polygonal reticulation
	Metapleura ornamentation (Ch 75)	Plain without microtrichia --> with

		microtrichia
	Abdominal segments coloration (Ch 77)	Dark --> bicolor
Dendrothripinae	Head cheeks (Ch 31)	Straight --> with a notch behind the eyes
	PO setae (Ch 36)#	Mixed --> no developed
	Mesosternellum (Ch 57)#	Different plate from the metasternum --> fused to metasternum
	Metasternal furca (Ch 76)	Don't reach the median line of metasternum --> touch the mesosternum
	Microtrichia abdominal tergites II–VI (Ch 98)	Absent --> lateral
	Microtrichia abdominal tergites VII–VIII (Ch 99)	absent --> lateral
Panchaetothripinae	Antennal segments number (Ch 16)*	9 --> 8
	Pronotum sculpture (Ch 50)*	Reticulate-striate --> reticulate
	Pronotum sculpture (Ch 51)	Soft --> strong
	Mesosternellum (Ch 57)	Different plate from the metasternum --> fused to the metasternum
	Mesonotum sculpture pattern (Ch 62)*	Reticulate-striate --> reticulate
	Metanotum sculpture pattern (Ch 66)	Sculpture simple --> form a central triangle
	Metasternum sculpture pattern (Ch 73)	Uniform --> central elevated triangle

*only Q-INS-i alignment synaphomorphies / #only L-INS-i alignment synaphomorphies

Supplementary material 5

Trees comparison tables

SPR distance (similarity)

Total evidence			
K8	K8MM_L	K8MM_Q	
K10MM_Q	18-20 (0.816-0.796)	<u>0-2 (1-0.9796)</u>	
K8MM_L		17-23 (0.827-0.765)	
K10	K10MM_L		
K10MM_Q	16-19 (0.837-0.806)		
K12	K12MM_L	K12MM_Q	
K10MM_Q	5-6 (0.949-0.939)	4-5 (0.959-0.949)	
K12MM_L		16-20 (0.837-0.796)	
Total evidence vs. molecular data			
K8	K8MOL_L	K8MOL_Q	
K10MM_Q	11-15 (0.888-0.847)	4-5 (0.959-0.949)	
K8MOL_L		8-9 (0.8491-0.8302)	
K10	K10MOL_L	K10MOL_Q	
K10MM_Q	11-13 (0.888-0.867)	4-5 (0.959-0.949)	
K10MOL_L		6-10 (0.939-0.898)	
K12	K12MOL_L	K12MOL_Q	
K10MM_Q	5-6 (0.949-0.939)	4-5 (0.959-0.949)	
K12MOL_L		1-2 (0.990-0.980)	
Total evidence vs. morphological data			
K8	K8MORF	K8MORF_LOG	K8MORF_LOG_ST
K10MM_Q	57-61 (0.418-0.378)	56-62 (0.429-0.367)	55-61 (0.439-0.378)
K8MORF		20-29 (0.796-0.704)	24-30 (0.755-0.694)
K8MORF_LOG			<u>0-7 (1-0.929)</u>
K10	K10MORF	K10MORF_LOG	K10MORF_LOG_ST
K10MM_Q	57-61 (0.418-0.378)	52-62 (0.469-0.367)	55-60 (0.439-0.388)
K10MORF		20-30 (0.786-0.694)	25-29 (0.745-0.704)
K10MORF_LOG			<u>0-8 (1-0.918)</u>
K12	K12MORF	K12MORF_LOG	K12MORF_LOG_ST
K10MM_QUIN	57-61 (0.418-0.378)	52-61 (0.469-0.378)	55-61 (0.439-0.378)
K12MORF		21-29 (0.786-0.704)	24-29 (0.755-0.704)
K12MORF_LOG			<u>0-8 (1-0.918)</u>

Underlined are shown the similar trees: 0 SPR-swaps and maximum value of similarity (1).

Distortion Coefficient

Total Evidence			
K8	K10MM_Q	K8MM_L	K8MM_Q
K10MM_Q		0.945-0.947	<u>0.997-1</u>
K8MM_L	0.927-0.929		0.927-0.930
K8MM_Q	0.996-0.999	0.945-0.948	

K10	K10MM_Q	K10MM_L	
K10MM_Q		0.948-0.951	
K10MM_L	0.932-0.935		
K12	K10MM_Q	K12MM_L	K12MM_Q
K10MM_Q		0.945-0.954	0.950-0.958
K12MM_L	0.977-0.980		0.948-0.951
K12MM_Q	0.979-0.982	0.960-0.963	

Total evidence vs. molecular data

K8	K10MM_Q	K8MOL_L	K8MOL_Q
K10MM_Q		0.956-0.962	0.954-0.996
K8MOL_L	0.890-0.906		0.924-0.945
K8MOL_Q	0.950-0.958	0.925-0.944	
K10	K10MM_Q	K10MOL_L	K10MOL_Q
K10MM_Q		0.893-0.920	0.950-0.958
K10MOL_L	0.956-0.967		0.924-0.958
K10MOL_Q	0.979-0.982	0.933-0.956	
K12	K10MM_Q	K12MOL_L	K12MOL_Q
K10MM_Q		0.945-0.953	0.950-0.958
K12MOL_L	0.977-0.980		0.987-0.996
K12MOL_Q	0.979-0.982	0.987-0.996	

Total evidence vs. morphological data

K8	K10MM_Q	K8MORF	K8MORF_LOG	K8MORF_LOG_ST
K10MM_Q		0.843-0.848	0.846-0.848	0.842-0.848
K8MORF	0.815-0.818		0.939-0.952	0.937-0.943
K8MORF_LOG	0.810-0.819	0.940-0.955		<u>0.988-1</u>
K8MORF_LOG_ST	0.816-0.819	0.942-0.946	0.988-0.999	
K10	K10MM_Q	K10MORF	K10MORF_LOG	K10MORF_LOG_ST
K10MM_Q		0.843-0.847	0.985-0.999	0.842-0.847
K10MORF	0.815-0.818		0.937-0.951	0.937-0.944
K10MORF_LOG	0.810-0.819	0.940-0.955		<u>0.987-1</u>
K10MORF_LOG_ST	0.816-0.819	0.942-0.946	<u>0.985-1</u>	
K12	K10MM_Q	K12MORF	K12MORF_LOG	K12MORF_LOG_ST
K10MM_Q		0.843-0.847	0.845-0.848	0.842-0.847
K12MORF	0.815-0.818		0.937-0.951	0.939-0.943
K12MORF_LOG	0.810-0.819	0.940-0.955		<u>0.985-1</u>
K12MORF_LOG_ST	0.816-0.819	0.942-0.946	<u>0.987-1</u>	

This measurement is asymmetric so it was calculated in both directions.

Number of nodes of the consensus trees for total evidence trees

Total Evidence			
K8	K10MM_Q	K8MM_L	K8MM_Q
K10MM_Q	<u>97-99</u>	68-69	91-92
K8MM_L		<u>97-99</u>	68-70
K8MM_Q			<u>97-99</u>
K10	K10MM_Q	K10MM_L	
K10MM_Q	<u>97-99</u>	73-75	
K10MM_L		<u>97-99</u>	

K12	K10MM_Q	K12MM_L	K12MM_Q
K10MM_Q	<u>97-99</u>	74-76	<u>97-99</u>
K12MM_L		<u>97-99</u>	71-72
K12MM_Q			<u>97-99</u>

Total evidence vs. molecular data

K8	K10MM_Q	K8MOL_L	K8MOL_Q
K10MM_Q	<u>97-99</u>	35-38	44-46
K8MOL_L		50-54	39-42
K8MOL_Q			52-54

K10	K10MM_Q	K10MOL_L	K10MOL_Q
K10MM_Q	<u>97-99</u>	35-39	44-46
K10MOL_L		48-54	39-44
K10MOL_Q			52-54

K12	K10MM_Q	K12MOL_L	K12MOL_Q
K10MM_Q	<u>97-99</u>	43-45	44-46
K12MOL_L		52-54	51-53
K12MOL_Q			52-54

Total evidence vs. morphological data

K8	K10MM_Q	K8MORF	K8MORF_LOG	K8MORF_LOG_ST
K10MM_Q	<u>97-99</u>	33-34	40-42	41-42
K8MORF		<u>96-99</u>	63-66	63-65
K8MORF_LOG			<u>89-99</u>	90-98
K8MORF_LOG_ST				<u>96-99</u>

K10	K10MM_Q	K10MORF	K10MORF_LOG	K10MORF_LOG_ST
K10MM_Q	<u>97-99</u>	33-34	39-41	41-42
K10MORF		<u>96-99</u>	64-72	64-66
K10MORF_LOG			<u>89-99</u>	90-99
K10MORF_LOG_ST				<u>96-99</u>

K12	K10MM_Q	K12MORF	K12MORF_LOG	K12MORF_LOG_ST
K10MM_Q	<u>97-99</u>	33-34	39-41	41-42
K12MORF		<u>96-99</u>	64-72	64-66
K12MORF_LOG			<u>89-99</u>	89-98
K12MORF_LOG_ST				<u>96-99</u>