2022 FIRST CONSULTATION

1 July – 30 September 2022

Compiled comments for 2022 First Consultation: DP Mononychelus tanajoa (2018-006)

Summary

Participants

Name	Summary
Cuba	No hay comentarios al protocolo de diagnóstico
European Union	The comments are submitted by the European Commission on behalf of the European Union (EU) and its 27 Member States.
Ireland	No comment
Singapore	Singapore supports the draft annex to ISPM 27.
United Kingdom	please ignore

T (Type) - B = Bullet, C = Comment, P = Proposed Change, R = Rating
S (Status) - A = Accepted, C = Closed, O = Open, W = Withdrawn, M = Merged

Para	Text	Comment
G	(General Comment)	*Category : SUBSTANTIVE* **(124) Argentina (1 Oct 2022 12:43 AM)** We fully support comments from COSAVE
G	(General Comment)	*Category : SUBSTANTIVE* **(123) Peru (30 Sep 2022 11:11 PM)** The document has been reviewed, there are no comments
G	(General Comment)	*Category : SUBSTANTIVE* **(122) European Union (30 Sep 2022 8:42 PM)** The European Union and its 27 Member States support the comments submitted in the OCS by the European and Mediterranean Plant Protection Organisation (EPPO).
G	(General Comment)	*Category : SUBSTANTIVE* **(121) Antigua and Barbuda (30 Sep 2022 3:22 PM)** Antigua and Barbuda endorses all comments made in the sub-review in the Caribbean Agricultural Health and Food Safety Agency group.
G	(General Comment)	*Category : TECHNICAL* **(120) Paraguay (30 Sep 2022 2:09 PM)** Paraguay apoya comentarios de COSAVE.
G	(General Comment)	*Category : EDITORIAL* **(102) Nepal (30 Sep 2022 6:23 AM)** Nepal has no comments on DRAFT ANNEX TO ISPM◦27: Mononychellus tanajoa (2018-006)
G	(General Comment)	*Category : EDITORIAL* **(101) Barbados (29 Sep 2022 9:47 PM)** Barbados has no objections to this annex being made part of the protocol.

G	(General Comment)	*Category : TECHNICAL* **(98) Mali (29 Sep 2022 5:44 PM)** je n'ai pas d'objection
G	(General Comment)	*Category : SUBSTANTIVE* **(96) Canada (29 Sep 2022 3:47 PM)** no comments from Canada
G	(General Comment)	*Category : SUBSTANTIVE* **(90) Japan (29 Sep 2022 10:18 AM)** Regarding the identification of Mononychellus tanajoa, external morphological identification is essential, but molecular identification is also important. The morphological identification may be difficult due to the large number of closely related species. In this regard, it will be better to add new section regarding genetic information of close species after the Section 4.6.2.4 "Sequence edition and analyses" in order to provide more useful information for identification. We share, for reference, the attached scientific paper (Mutisya et al., 2016) on related species Mononychellus progresivus.
G	(General Comment)	*Category : EDITORIAL* **(89) South Africa (28 Sep 2022 7:51 AM)** The NPPOZA has no comments
G	(General Comment)	*Category : SUBSTANTIVE* **(87) Belarus (27 Sep 2022 3:42 PM)** Republic of Belarus would like to formally endorse the EPPO comments submitted via the IPPC Online Comment System
G	(General Comment)	*Category : EDITORIAL* **(86) United Kingdom (27 Sep 2022 2:44 PM)** The United Kingdom of Great Britain and Norther Ireland would like to formally endorse the EPPO comments submitted via the IPPC Online Comment System
G	(General Comment)	*Category : TECHNICAL*  Mexico **(67) Mexico (26 Sep 2022 9:35 PM)** Mexico supports the DRAFT ANNEX TO ISPM 27: Mononychellus tanajoa (2018-006).
G	(General Comment)	*Category : SUBSTANTIVE* **(66) Guyana (26 Sep 2022 9:35 PM)** Guyana has no objection at this time.
G	(General Comment)	*Category : SUBSTANTIVE* **(63) Egypt (24 Sep 2022 11:15 AM)** No comments. Since it has been scientifically justified supported with valid references
G	(General Comment)	*Category : TECHNICAL* **(25) Uruguay (19 Sep 2022 4:24 PM)** We agree with the document as it is. No comments
G	(General Comment)	*Category : SUBSTANTIVE* **(24) Congo (15 Sep 2022 2:57 PM)** Congo agree with this ISPM and has nothing to add
G	(General Comment)	*Category : SUBSTANTIVE* **(23) Malawi (31 Aug 2022 4:55 PM)** We support draft Annex ISPM 27

G	(General Comment)	*Category : SUBSTANTIVE* **(11) Thailand (25 Aug 2022 6:54 AM)** Thailand agreed with the proposed draft DP: Mononychellus tanajoa.
G	(General Comment)	*Category : SUBSTANTIVE* **(2) Bahamas (16 Aug 2022 2:36 AM)** The Bahamas offers no objections to the draft annex of ISPM 27 on Mononychellus tanajoa.
1	**DRAFT ANNEX TO ISPM 27: *Mononychellus tanajoa* (2018-006)**	*Category : SUBSTANTIVE* **(97) Russian Federation (29 Sep 2022 4:43 PM)** General Comment: The Russian Federation would like to formally endorse the EPPO comments submitted via the IPPC Online Comment System.
1	**DRAFT ANNEX TO ISPM 27: *Mononychellus tanajoa* (2018-006)**	*Category : TECHNICAL* **(88) Cameroon (27 Sep 2022 5:26 PM)** Nous soutenons l'adoption de cette annexe. Elle apporte de nouveaux outils de diagnostic plus précis pour des nuisibles et vont aider à une meilleure surveillance. CEs techniques biomoléculaires bien que plus performantes restent indisponibles dans nombre de pays en développement. Des renforcements de capacités seront nécessaires pour daciliter l'adoption
1	**DRAFT ANNEX TO ISPM 27: *Mononychellus tanajoa* (2018-006)**	*Category : SUBSTANTIVE* **(10) Zambia (20 Aug 2022 12:31 PM)** Zambia has no objection on this draft standard
1	**DRAFT ANNEX TO ISPM 27: *Mononychellus tanajoa* (2018-006)**	*Category : EDITORIAL* **(1) Syrian Arab Republic (30 Jul 2022 2:06 PM)** add english name
27	In addition, the draft has also been subject to expert review and the following international experts submitted comments: Frederic Beaulieu (CA), ~~Sophie Peterson~~ Jurgen Otto (AU) and Rajesh Ramarathnam (CA).	*Category : EDITORIAL* **(68) Australia (27 Sep 2022 2:05 AM)** This draft was subject to expert review by Jurgen Otto from Australia.
33	**CONTENTS**	*Category : TECHNICAL* **(22) Gabon (31 Aug 2022 11:15 AM)** L'annexe ajouté à la norme est très pertinente dans la mesure où il s'agit du protocole de diagnostic Mononychellus tanajoa qui est l'organisme nuisible du manioc. Le manioc étant une plante très brisée et faisant l'objet des échanges dans notre région, la maitrise du risque associé à cette plante est importante. Toutefois il est nécessaire que les méthodes biochimiques et moléculaires utilisées soient maitrisées par les ONPV.
39	The cassava green mite, *Mononychellus tanajoa* (Bondar) (Acari: Tetranychidae), is one of the major pests of cassava *Manihot esculenta* (Euphorbiaceae) (Byrne *et al.*, 1982; Byrne, Belloti and Guerrero, 1983; Veiga, 1985) – ~~the~~	*Category : EDITORIAL* **(103) New Zealand (30 Sep 2022 8:21 AM)**

	~~main~~ a staple crop for more than 11 percent of the world's population (FAO, 2013). It prefers to feed on the underside of young leaves of growing shoots of the cassava plant. Immature and adult mites feed by piercing plant tissues and sucking out the contents of cells, leading to leaf distortion and chlorotic mottling (Figure 1A, Figure 1B and Figure 1C). Severe mite damage can lead to defoliation of the upper parts of shoots, producing a "candlestick" appearance (Figure 1D) and resulting in 50–80% storage root yield loss (Shukla, 1976; Byrne, Belloti and Guerrero, 1983; Byrne *et al.*, 1982; Veiga, 1985; CABI, 2020). *M. tanajoa* has been on the A1[1] list of pests of the Asia and Pacific Plant Protection Commission since 1992 and the Pacific Plant Protection Organisation since 1993. The mite has also been on the A2[2] list of pests of East Africa and Southern Africa since 2001 and China since 1992 and has been a quarantine pest in the United States of America since 1989 (EPPO, 2020).	
39	The cassava green mite, *Mononychellus tanajoa* (Bondar) (Acari: Tetranychidae), is one of the major pests of cassava *Manihot esculenta* (Euphorbiaceae) (Byrne *et al.*, 1982; Byrne, Belloti and Guerrero, 1983; Veiga, 1985) – the main staple crop for more than 11 percent of the world's population (FAO, 2013). It prefers to feed on the underside of young leaves of growing shoots of the cassava plant. Immature and adult mites feed by piercing plant tissues and sucking out the contents of cells, leading to leaf distortion and chlorotic mottling (Figure 1A, ~~Figure~~ 1B and ~~Figure~~ 1C). Severe mite damage can lead to defoliation of the upper parts of shoots, producing	*Category : EDITORIAL* **(61) Colombia (21 Sep 2022 5:19 AM)** No es necesario usar la palabra "figure" en el siguiente fragmento en paréntesis "(Figure 1A, Figure 1B and Figure 1C)".

	a “candlestick” appearance (Figure 1D) and resulting in 50–80% storage root yield loss (Shukla, 1976; Byrne, Belloti and Guerrero, 1983; Byrne *et al.*, 1982; Veiga, 1985; CABI, 2020). *M. tanajoa* has been on the A1[1] list of pests of the Asia and Pacific Plant Protection Commission since 1992 and the Pacific Plant Protection Organisation since 1993. The mite has also been on the A2[2] list of pests of East Africa and Southern Africa since 2001 and China since 1992 and has been a quarantine pest in the United States of America since 1989 (EPPO, 2020).	
39	The cassava green mite, *Mononychellus tanajoa* (Bondar) (Acari: Tetranychidae), is one of the major pests of cassava *Manihot esculenta* (Euphorbiaceae) (Byrne *et al.*, 1982; Byrne, Belloti and Guerrero, 1983; Veiga, 1985) – the main staple crop for more than 11 percent of the world’s population (FAO, 2013). It prefers to feed on the underside of young leaves of growing shoots of the cassava plant. Immature and adult mites feed by piercing plant tissues and sucking out the contents of cells, leading to leaf distortion and chlorotic mottling (Figure ~~1A, Figure 1B and Figure 1C)~~1A-C). Severe mite damage can lead to defoliation of the upper parts of shoots, producing a “candlestick” appearance (Figure 1D) and resulting in 50–80% storage root yield loss (Shukla, 1976; Byrne, Belloti and Guerrero, 1983; Byrne *et al.*, 1982; Veiga, 1985; CABI, 2020). *M. tanajoa* has been a quarantine pest in the United States of America since 1989 and in China since 1992, and it has been on the A1[1] list of pests of the Asia and Pacific Plant Protection Commission since 1992 and of the Pacific Plant	*Category : EDITORIAL* **(26) EPPO (20 Sep 2022 5:49 PM)** 1) Editorial : Move of "a quarantine pest in the United States of America since 1989" : To follow the chronological order. 2) Technical : We suggest to delete the reference to the A2 list of China because it seems that in fact the pest is absent from China (invalid record according to EPPO : "The mite that was reported from Hainan in 2012 was then re-identified as Mononychellus mcgregori.", please see https://gd.eppo.int/taxon/MONNTA/distribution/CN). It seems therefore more appropriate to say that Mononychellus tanajoa is a quarantine pest in China since 1992. Simplification.

	Protection Organisation since 1993. The mite has also been on the A2[2] list of pests of East Africa and Southern Africa since 2001 ~~and China since 1992 and has been a quarantine pest in the United States of America since 1989~~ (EPPO, 2020).	
39	The cassava green mite, *Mononychellus tanajoa* (Bondar) (Acari: Tetranychidae), is one of the major pests of cassava *Manihot esculenta* (Euphorbiaceae) (Byrne *et al.*, 1982; Byrne, Belloti and Guerrero, 1983; Veiga, 1985) – the main staple crop for more than 11 percent of the world's population (FAO, 2013). It prefers to feed on the underside of young leaves of growing shoots of the cassava plant. Immature and adult mites feed by piercing plant tissues and sucking out the contents of cells, leading to leaf distortion and chlorotic mottling (Figure 1A, Figure 1B and Figure 1C). Severe mite damage can lead to defoliation of the upper parts of shoots, producing a "candlestick" appearance (Figure 1D) and resulting in 50–80% storage root yield loss (Shukla, 1976; Byrne, Belloti and Guerrero, 1983; Byrne *et al.*, 1982; Veiga, 1985; CABI, 2020). *M. tanajoa* has been on the A1[1] list of pests of the Asia and Pacific Plant Protection Commission since 1992 and the Pacific Plant Protection Organisation since 1993. The mite has also been on the A2[2] list of pests of East Africa and Southern Africa since 2001 and China ~~since~~ from 1992 to 2007 and has been a quarantine pest in the United States of America since 1989 (EPPO, 2020).	*Category : SUBSTANTIVE* **(12) China (28 Aug 2022 4:50 PM)** The current List of imported plant quarantine pests of the People's Republic of China released in 2007 does not include Mononychellus tanajoa
40	A1 pests are regulated as quarantine pests and are not present in the region.	*Category : EDITORIAL* **(118) New Zealand (30 Sep 2022 8:45 AM)**

41	A2 pests are regulated as quarantine pests and are present in the region, with limited distribution.	*Category : EDITORIAL* **(119) New Zealand (30 Sep 2022 8:46 AM)**
42	*Mononychellus tanajoa* (Figure 2A) is ~~considered to be~~ a tropical and subtropical species. It was first described from *Manihot* spp. in South America in 1938 and is now widely distributed in South and Central America (Machi, *et al.* 2014; Vásquez-Ordóñez and Parsa, 2014; CABI, 2020; EPPO, 2020; Migeon and Dorkeld, 2021). In Africa, *M. tanajoa* was first reported in Uganda in 1971 (Lyon, 1973). From there, it rapidly spreads throughout the cassava-growing regions of the continent and is now established in over 30 countries (Byrne, Belloti and Guerrero, 1983; Gutierrez *et al.*, 1988; Yaninek, 1988; Yaninek, *et al.*1989; Bolland, Gutierrez and Flechtmann, 1998; Vásquez-Ordóñez and Parsa, 2014; CABI, 2020; EPPO, 2020; Migeon and Dorkeld, 2021).	*Category : EDITORIAL* **(104) New Zealand (30 Sep 2022 8:22 AM)**
42	*Mononychellus tanajoa* (Figure 2A) is considered to be a tropical and subtropical species. It was first described ~~from~~ on *Manihot* spp. in South America in 1938 and is now widely distributed in South and Central America (Machi, *et al.* 2014; Vásquez-Ordóñez and Parsa, 2014; CABI, 2020; EPPO, 2020; Migeon and Dorkeld, 2021). In Africa, *M. tanajoa* was first reported in Uganda in 1971 (Lyon, 1973). From there, it rapidly ~~spreads~~ spread throughout the cassava-growing regions of the continent and is now established in over 30 countries (Byrne, Belloti and Guerrero, 1983; Gutierrez *et al.*, 1988; Yaninek, 1988; Yaninek, *et al.*1989; Bolland, Gutierrez and Flechtmann, 1998; Vásquez-Ordóñez and Parsa, 2014; CABI, 2020; EPPO, 2020; Migeon and Dorkeld, 2021).	*Category : EDITORIAL* **(27) EPPO (20 Sep 2022 5:49 PM)**

42	*Mononychellus tanajoa* (Figure 2A) is considered to be a tropical and subtropical species. It was first described from *Manihot* spp. in ~~South America~~ Brazil in 1938 and is now widely distributed in South and Central America (Machi, *et al.* 2014; Vásquez-Ordóñez and Parsa, 2014; CABI, 2020; EPPO, 2020; Migeon and Dorkeld, 2021). In Africa, *M. tanajoa* was first reported in Uganda in 1971 (Lyon, 1973). From there, it rapidly spreads throughout the cassava-growing regions of the continent and is now established in over 30 countries (Byrne, Belloti and Guerrero, 1983; Gutierrez *et al.*, 1988; Yaninek, 1988; Yaninek, *et al.*1989; Bolland, Gutierrez and Flechtmann, 1998; Vásquez-Ordóñez and Parsa, 2014; CABI, 2020; EPPO, 2020; Migeon and Dorkeld, 2021).	*Category : TECHNICAL* **(13) China (28 Aug 2022 4:50 PM)**
43	This mite is mainly a pest of cultivated *M. esculenta*, although it has ~~also~~ been recorded on other *Manihot* species (Bondar, 1938; Flechtmann and Baker, 1970). ~~In addition, it~~ It also occurs on several species in other plant families, including *Erythrina* sp., *Gliricidia maculata*, *Gliricidia sepium*, *Phaseolus vulgaris* and *Senna occidentalis* (Fabaceae) (Rossi Simons, 1961; Baker and Pritchard, 1962; Estebanes-Gonzalez and Baker, 1968; Andrews and Poe, 1980; Mendonça *et al*., 2011); *Passiflora cincinnata* and *Passiflora edulis* (Passifloraceae) (Moraes, Moreira and Delalibera, 1995; Mendonça *et al.*, 2011); and *Typha domingensis* (Typhaceae) (Aguilar and Murillo, 2008; Moraes, Moreira and Delalibera, 1995; Migeon and Dorkeld, 2021).	*Category : EDITORIAL* **(105) New Zealand (30 Sep 2022 8:24 AM)**

43	This mite is mainly a pest of cultivated *M. esculenta*, although has also been recorded on other *Manihot* species (Bondar, 1938; Flechtmann and Baker, 1970). In addition, it occurs on several species in other plant families, including *Erythrina* sp., *Gliricidia maculata*, *Gliricidia sepium*, *Phaseolus vulgaris* and *Senna occidentalis* (Fabaceae) (Rossi Simons, 1961; Baker and Pritchard, 1962; Estebanes-Gonzalez and Baker, 1968; Andrews and Poe, 1980; Mendonça *et al*., 2011); *Passiflora cincinnata* and *Passiflora edulis* (Passifloraceae) (Moraes, Moreira and Delalibera, 1995; Mendonça *et al.*, 2011); and *Typha domingensis* (Typhaceae) (Aguilar and Murillo, 2008; Moraes, Moreira and Delalibera, 1995; Migeon and Dorkeld, 2021).	*Category : EDITORIAL* **(69) Australia (27 Sep 2022 2:07 AM)** This publication is missing from the reference list at the end of the document.
43	This mite is mainly a pest of cultivated *M. esculenta*, although has also been recorded on other *Manihot* species (Bondar, 1938; Flechtmann and Baker, 1970). In addition, it occurs on several species in other plant families, including *Erythrina* sp., *Gliricidia maculata*, *Gliricidia sepium*, *Phaseolus vulgaris* and *Senna occidentalis* (Fabaceae) (Rossi Simons, 1961; Baker and Pritchard, 1962; Estebanes-Gonzalez and Baker, 1968; Andrews and Poe, 1980; Mendonça *et al*., 2011); *Passiflora cincinnata* and *Passiflora edulis* (Passifloraceae) (Moraes, Moreira and Delalibera, 1995; Mendonça *et al.*, 2011); and *Typha domingensis* (Typhaceae) (Aguilar and Murillo, 2008; Moraes, Moreira and Delalibera, 1995; Migeon and Dorkeld, 2021).	*Category : EDITORIAL* **(14) China (28 Aug 2022 4:51 PM)** List the distribution in a list or table. For easy enquiry

44	The life cycle of *M. tanajoa* consists of the egg and four active stages: six-legged larva, eight-legged protonymph, deutonymph and adult. An inactive (quiescent) stage is present between the active stages, during which moulting occurs. This species overwinters in temperate climates as eggs or adult females. It completes a generation in 24.7 days on *M. esculenta* at 24 ± 2 °C, 65 ± 10% relative humidity (Moraes, Moreira and Delalibera, 1995). The developmental time can decrease substantially with increasing temperature; *M. tanajoa* needs only eight days to develop from egg to adult at 31 °C. An adult female can lay about 58 eggs during its lifetime (Yaninek *et al.*, 1989). The highest population density of *M. tanajoa* occurs during the first half of the dry season (Yaninek *et al.*, 1989). In Brazil, severe damage is only observed in the dry areas of the northeast region, although the mite is widely distributed in the country (Moraes and Flechtmann, 2008).	*Category : EDITORIAL* **(70) Australia (27 Sep 2022 2:08 AM)** This publication is missing from the reference list at the end of the document.
44	The life cycle of *M. tanajoa* consists of the egg and four active stages: six-legged larva, eight-legged protonymph, deutonymph and adult. An inactive (quiescent) stage is present between the active stages, during which moulting occurs. This species overwinters ~~in temperate climates~~ as eggs or adult females. It completes a generation in 24.7 days on *M. esculenta* at 24 ± 2 °C, 65 ± 10% relative humidity (Moraes, Moreira and Delalibera, 1995). The developmental time can decrease substantially with increasing temperature; *M. tanajoa* needs only eight days to develop from egg to adult at 31 °C. An adult female can lay about 58 eggs during its lifetime	*Category : TECHNICAL* **(28) EPPO (20 Sep 2022 5:49 PM)** This reference to tempetare climate is not understood. What is the reference? Is this species not only present in tropical and substropical regions.

	(Yaninek *et al.*, 1989). The highest population density of *M. tanajoa* occurs during the first half of the dry season (Yaninek *et al.*, 1989). In Brazil, severe damage is only observed in the dry areas of the northeast region, although the mite is widely distributed in the country (Moraes and Flechtmann, 2008).	
44	The life cycle of *M. tanajoa* consists of the egg and four active stages: six-legged larva, eight-legged protonymph, deutonymph and adult. An inactive (quiescent) stage is present between the active stages, during which moulting occurs. This species overwinters in temperate climates as eggs or adult females. It completes a generation in 24.7 days on *M. esculenta* at 24 ± 2 °C, 65 ± 10% relative humidity (Moraes, Moreira and Delalibera, 1995). The developmental time can decrease substantially with increasing temperature; *M. tanajoa* needs only eight days to develop from egg to adult at 31 °C. An adult female can lay about 58 eggs during its lifetime (Yaninek *et al.*, 1989). The highest population density of *M. tanajoa* occurs during the first half of the dry season (Yaninek *et al.*, 1989). In Brazil, severe damage is only observed in the dry areas of the northeast region, although the mite is widely distributed in the country (Moraes and Flechtmann, 2008).	*Category : EDITORIAL* **(15) China (28 Aug 2022 4:51 PM)** List the host plants in a list or table. For easy enquiry
45	Mites in the family Phytoseiidae (Figure 2B) are ~~considered to be~~ the main natural enemies of spider mites (Tetranychidae). Among the natural enemies of *M. tanajoa*, more than 30 species of Phytoseiidae are found on *Manihot* spp. (Zannou *et al.*, 2005; Mutisya *et al.*, 2017; Demite *et al.*, 2021). Apart from the phytoseiid mites, the	*Category : EDITORIAL* **(106) New Zealand (30 Sep 2022 8:25 AM)**

	acaropathogenic fungus *Neozygites tanajoae* (Entomophthorales: Neozygitaceae) (Figure 2C) is a widespread host-specific pathogen of *M. tanajoa* in Brazil (Delalibera, Hajek and Humber, 2004). It was introduced into Benin in West Africa where it is ~~presently~~ now widespread (Agboton, Hanna and Tiedmann, 2011) alongside the much less virulent *Neozygites floridana*), which has a much broader host range among tetranychid mites (Lopes Ribeiro *et al.*, 2009).	
45	Mites in the family Phytoseiidae (Figure 2B) are considered to be the main natural enemies of spider mites (Tetranychidae). Among the natural enemies of *M. tanajoa*, more than 30 species of Phytoseiidae are found on *Manihot* spp. (Zannou *et al.*, 2005; Mutisya *et al.*, 2017; Demite *et al.*, 2021). Apart from the phytoseiid mites, the acaropathogenic fungus *Neozygites tanajoae* (Entomophthorales: Neozygitaceae) (Figure 2C) is a widespread host-specific pathogen of *M. tanajoa* in Brazil (Delalibera, Hajek and Humber, 2004). It was introduced into Benin in West Africa where it is presently widespread (Agboton, Hanna and Tiedmann, 2011) alongside the much less virulent *Neozygites floridana*~~)~~, which has a much broader host range among tetranychid mites (Lopes Ribeiro *et al.*, 2009).	*Category : EDITORIAL* **(29) EPPO (20 Sep 2022 5:49 PM)** Typo: deletion of a superfluous bracket.
45	Mites in the family Phytoseiidae (Figure 2B) are considered to be the main natural enemies of spider mites (Tetranychidae). Among the natural enemies of *M. tanajoa*, more than 30 species of Phytoseiidae are found on *Manihot* spp. (Zannou *et al.*, 2005; Mutisya *et al.*, 2017; Demite *et al.*, 2021). Apart from the phytoseiid mites, the acaropathogenic fungus *Neozygites tanajoae*	*Category : EDITORIAL* **(16) China (28 Aug 2022 4:53 PM)**

	(Entomophthorales: Neozygitaceae) (Figure 2C) is a widespread host-specific pathogen of *M. tanajoa* in Brazil (Delalibera, Hajek and Humber, 2004). It was introduced into Benin in West Africa where it is presently widespread (Agboton, Hanna and Tiedmann, 2011) alongside the much less virulent *Neozygites floridana*), which has a much broader host range among ~~tetranychid~~ Tetranychid mites (Lopes Ribeiro *et al.*, 2009).	
48	**Synonyms:** *Eotetranychus estradai* Baker and Pritchard, 1962	*Category : TECHNICAL* **(3) United States of America (18 Aug 2022 9:18 PM)** In zoology, an alternative generic combination is not a synonym. A synonym is a name published with a separate type that is subsequently considered to refer to the same entity as another published name at the same rank. Moving a species from one genus to another is a taxonomic choice that does not bear on typification. In this case, Eotetranychius estradai is a synonym, but Tetranychus tanajoa is, technically, the "original combination" and Mononychus tanajoa is an "alternative combination". A more general way to refer to both synonyms and alternative generic combinations is as "other names".
55	In addition to being found on plant foliage, *M. tanajoa* may also be found on cassava stem cuttings, packaging, farm machinery, vehicles and tools, farm waste, workers' clothing, soil, and nearby plants that are in contact with the host. Because of the small size of *M. tanajoa*, it is extremely difficult to detect during the early stages of an infestation.	*Category : EDITORIAL* **(107) New Zealand (30 Sep 2022 8:26 AM)**
57	In addition to *M. tanajoa*, other mites co-infest cassava in the Americas (principally several species in the *Mononychellus* genus) and in Africa (principally *Oligonychus gossypii* and rarely *Tetranychus urticae*. In Africa, *O. gossypii* is easily distinguishable from *M. tanajoa* by its larger size, reddish appearance, and colonization of older leaves – hence the common name "red spider mite". Adult females and males are used for identification with	*Category : TECHNICAL* **(109) New Zealand (30 Sep 2022 8:30 AM)** It's not clear whether the species can be identified from an adult female or an adult male using the key or whether you need both of them. is it more accurate to say 'Only adults of the species can be identified using dichotomous keys'. This implies that other life stages cannot be identified using dichotomous keys and fits with what the identification section says re morphological id of immature stages not being available

	dichotomous keys (Flechtmann and de Queiroz, 2015).	
57	~~In addition to~~ O~~M. tanajoa, other~~ ther mites co-infest cassava in the Americas (principally several species in the *Mononychellus* genus) and in Africa (principally *Oligonychus gossypii* and rarely *Tetranychus urticae*. In Africa, *O. gossypii* is easily distinguishable from *M. tanajoa* by its larger size, reddish appearance, and colonization of older leaves – hence the common name "red spider mite". Adult females and males are used for identification with dichotomous keys (Flechtmann and de Queiroz, 2015).	*Category : EDITORIAL* **(108) New Zealand (30 Sep 2022 8:28 AM)**
57	In addition to *M. tanajoa*, other mites co-infest cassava in the Americas (principally several species in the *Mononychellus* genus) and in Africa (principally *Oligonychus gossypii* and rarely *Tetranychus ~~urticae~~urticae)*. In Africa, *O. gossypii* is easily distinguishable from *M. tanajoa* by its larger size, reddish appearance, and colonization of older leaves – hence the common name "red spider mite". Adult females and males are used for identification with dichotomous keys (Flechtmann and de Queiroz, 2015).	*Category : EDITORIAL* **(71) Australia (27 Sep 2022 2:09 AM)** Addition of closed bracket
57	In addition to *M. tanajoa*, other mites co-infest cassava in the Americas (principally several species in the *Mononychellus* genus) and in Africa (principally *Oligonychus gossypii* and rarely *Tetranychus urticae*). In Africa, *O. gossypii* is easily distinguishable from *M. tanajoa* by its larger size, reddish ~~appearance, and colonization of older leaves~~ appearance – hence the common name "red spider ~~mite"~~mite" – and colonization of older leaves. Adult females and males are used	*Category : EDITORIAL* **(30) EPPO (20 Sep 2022 5:49 PM)** 1) Addition of a missing bracket. 2) More logical order and addition of an hyphen.

	for identification with dichotomous keys (Flechtmann and de Queiroz, 2015).	
57	In addition to *M. tanajoa*, other mites co-infest cassava in the Americas (principally several species in the *Mononychellus* genus) and in Africa (principally *Oligonychus gossypii* and rarely *Tetranychus urticae*. In Africa, *O. gossypii* is easily distinguishable from *M. tanajoa* by its larger size, reddish appearance, and colonization of older leaves – hence the common name “red spider mite”. Adult females and males are used for identification with dichotomous keys (Flechtmann and de Queiroz, 2015).	*Category : TECHNICAL* **(4) United States of America (18 Aug 2022 9:23 PM)** not a clear sentence; perhaps ""Adult females and males can be identified with dichotomous keys"
60	The washing and sieving method can also be used to collect spider mites. First, leaves or branches are dipped in 0.2–0.3% household detergent or 50–70% ethanol in a large container and stirred for a few minutes to dislodge the mites. Next, the suspension is poured into a stack of three stainless-steel sieves: 1680 µm, 600 µm and 44 µm aperture for the top, middle and bottom sieves, respectively (modified from de Lillo, 2009). Finally, mites on the bottom sieve are back-washed with 70% ethanol into a Petri dish and picked up with a fine brush. An alternative method is to simply immerse plant material in 50–70% ethanol, allowing the mites to sink to the bottom of the container, ~~pipetting~~ then pipet them into a small vial and ~~storing~~store them.	*Category : EDITORIAL* **(110) New Zealand (30 Sep 2022 8:32 AM)**
63	Identification of spider mites in the *Mononychellus* genus has traditionally been based on microscopic morphological characters. Adult female and male specimens must be mounted on slides and examined using a high-power	*Category : EDITORIAL* **(111) New Zealand (30 Sep 2022 8:33 AM)**

	microscope (e.g., ×400–1000). Morphological ~~characters~~ characteristics are best observed with a compound microscope using either differential interference contrast or phase contrast. Features of the adult body are illustrated and labelled in Figures 3–8. Keys for the morphological identification of immature stages of *Mononychellus* are not available.	
63	Identification of spider mites in the *Mononychellus* genus has traditionally been based on microscopic morphological characters. Adult female and male specimens must be mounted on slides and examined using a high-power microscope (e.g., ×400–1000). Morphological characters are best observed with a compound microscope using either differential interference contrast or phase contrast. Features of the adult body are illustrated and labelled in Figures 3–8. Keys for the morphological species identification of immature stages of *Mononychellus* are not available.	*Category : SUBSTANTIVE* **(72) Australia (27 Sep 2022 2:10 AM)** It is considered that the terminology "morphological species identification" is more clear and will assist in avoiding potential misinterpretations. For example this sentence is not referring to distinguishing between different instars but rather between different species on the basis of their instars.
63	Identification of spider mites in the *Mononychellus* genus has traditionally been based on microscopic morphological characters. Adult female and male specimens must be mounted on slides and examined using a high-power microscope (e.g., ×400–1000). Morphological characters are best observed with a compound microscope using either differential interference contrast or phase contrast. Features of the adult body are illustrated and labelled in Figures 3–8. ~~Keys for the~~ The morphological identification of immature stages of *Mononychellus* are not available.	*Category : SUBSTANTIVE* **(17) China (28 Aug 2022 4:54 PM)**

64	Molecular methods can be used to identify all life stages of M. ~~tanajoa~~*tanajoa*. DNA sequencing of a barcoding fragment of the cytochrome c oxidase subunit I (*COI*) can support identification since sequences of *M. tanajoa* and of some closely related cassava *Mononychellus* species (*M. caribbeanae*, *M. progresivus* and *M. mcgregori*) are available in the GenBank public database (a National Center for Biotechnology Information database). In addition, a molecular method based on restriction fragment length polymorphism has been established to distinguish some tetranychid species associated with cassava, including *M. tanajoa*, *M. caribbeanae*, *M. mcgregori* and *T. urticae* (Ovalle *et al*., 2020).	*Category : EDITORIAL* **(73) Australia (27 Sep 2022 2:11 AM)** Addition of italics for species
64	Molecular methods can be used to identify all life stages of ~~M. tanajoa~~*M. tanajoa*. DNA sequencing of a barcoding fragment of the cytochrome c oxidase subunit I (*COI*) can support identification since sequences of *M. tanajoa* and of some closely related cassava *Mononychellus* species (*M. caribbeanae*, *M. progresivus* and *M. mcgregori*) are available in the GenBank public database (a National Center for Biotechnology Information database). In addition, a molecular method based on restriction fragment length polymorphism has been established to distinguish some tetranychid species associated with cassava, including *M. tanajoa*, *M. caribbeanae*, *M. mcgregori* and *T. urticae* (Ovalle *et al*., 2020).	*Category : EDITORIAL* **(62) Colombia (21 Sep 2022 5:21 AM)** Nombres científicos en cursiva
64	Molecular methods can be used to identify all life stages of ~~M. tanajoa~~*M. tanajoa*. DNA sequencing of a barcoding fragment of the cytochrome c	*Category : TECHNICAL* **(31) EPPO (20 Sep 2022 5:49 PM)**

	oxidase subunit I (*COI*) can support identification since sequences of *M. tanajoa* and of some closely related cassava *Mononychellus* species (*M. caribbeanae*, *M. progresivus* and *M. mcgregori*) are available in the GenBank public database (a National Center for Biotechnology Information database). In addition, a molecular method based on restriction fragment length polymorphism has been established to distinguish some tetranychid species associated with cassava, including *M. tanajoa*, *M. caribbeanae*, *M. mcgregori* and *T. urticae* (Ovalle *et al*., 2020).	
64	Molecular methods can be used to identify all life stages of M. tanajoa. DNA sequencing of a barcoding fragment of the cytochrome c oxidase subunit I (*COI*) can support identification since sequences of *M. tanajoa* and of some closely related cassava *Mononychellus* species (*M. caribbeanae*, *M. progresivus* and *M. mcgregori*) are available in the GenBank public database (a National Center for Biotechnology Information database). In addition, a molecular method based on restriction fragment length polymorphism has been established to distinguish some tetranychid species associated with cassava, including *M. tanajoa*, *M. caribbeanae*, *M. mcgregori* and *T. urticae* (Ovalle *et al*., 2020).	*Category : EDITORIAL* **(5) United States of America (18 Aug 2022 9:24 PM)** should bein italics.
66	Mites need to be cleared for morphological examination. Clearing can be accomplished with 85–92% lactic acid (suitable for recently collected specimens) or Nesbitt's fluid (chloral hydrate 40 g, concentrated HCl (12 M) 2.5 mL, distilled water 25 mL, suitable for old alcohol-preserved specimens). The clearing process varies from	*Category : TECHNICAL* **(113) New Zealand (30 Sep 2022 8:38 AM)** should check the availability of this product. Internet search shows this product no longer exists, and manufacture stopped in the 1980s. Glyptal is a brand of paints and sealers in general, not a specific sealant.

	specimen to specimen. It is advisable to check occasionally until the specimens become translucent. Specimens are mounted in Hoyer's medium (chloral hydrate 200 g, crystalline gum arabic 30 g, glycerol 20 mL, distilled water 50 mL) or in Heinze-PVA medium (chloral hydrate 100 g, glycerol 10 mL, polyvinyl alcohol 10 g, distilled water 60 mL, 85–92% lactic acid 35 mL). Adult females are mounted dorsoventrally, but adult males should be mounted laterally to display the taxonomically informative characters of the aedeagus (male genitalia). The male specimens can be mounted as Henderson (2001) described or repositioned laterally by gently pushing the coverslip to one side. Slides are then labelled with the collection data (i.e., an accession number, locality, host, collector, and collection date) and then put on a hot plate at 70 °C for at least 20 minutes before identification. A longer heating time (24 hr) on the hot plate is required to ensure the slides are completely stable before using immersion objectives. The slides should be completely stable before using immersion objectives. If the specimens are to be retained following identification (see section 5), the identified specimens are placed in an oven at 45–50°C for a few weeks until the medium is dry. For long-term storage, specimens mounted in Hoyer's medium on microscope slides should be sealed with a sealant. (i.e., Glyptal[3] Glyceel or Euparol). Detailed methods for mite specimen preparation and mounting are available in Walter and Krantz (2009).	

66	Mites need to be cleared for morphological examination. Clearing can be accomplished ~~with~~ by submersing the specimen in 85–92% lactic acid (suitable for recently collected specimens) or Nesbitt's fluid (chloral hydrate 40 g, concentrated HCl (12 M) 2.5 mL, distilled water 25 mL, suitable for old alcohol-preserved specimens). The clearing process varies from specimen to specimen. It is advisable to check occasionally until the specimens become translucent. Specimens are mounted in Hoyer's medium (chloral hydrate 200 g, crystalline gum arabic 30 g, glycerol 20 mL, distilled water 50 mL) or in Heinze-PVA medium (chloral hydrate 100 g, glycerol 10 mL, polyvinyl alcohol 10 g, distilled water 60 mL, 85–92% lactic acid 35 mL). Adult females are mounted dorsoventrally, but adult males should be mounted laterally to display the taxonomically informative characters of the aedeagus (male genitalia). The male specimens can be mounted as Henderson (2001) described or repositioned laterally by gently pushing the coverslip to one side. Slides are then labelled with the collection data (i.e., an accession number, locality, host, collector, and collection date) and then put on a hot plate at 70 °C for at least 20 minutes before identification. A longer heating time (24 hr) on the hot plate is required to ensure the slides are completely stable before using immersion objectives. The slides should be completely stable before using immersion objectives. If the specimens are to be retained following identification (see section 5), the identified specimens are placed in an oven at ~~45–50°C~~ 45–50 °C for a few weeks until the medium	*Category : EDITORIAL* **(112) New Zealand (30 Sep 2022 8:36 AM)** to clarify what needs to be done to the specimen for clearing

	is dry. For long-term storage, specimens mounted in Hoyer's medium on microscope slides should be sealed with a sealant. ~~(~~i(e.~~e~~g., Glyptal[3] Glyceel or Euparol). Detailed methods for mite specimen preparation and mounting are available in Walter and Krantz (2009).	
66	Mites need to be cleared for morphological examination. Clearing can be accomplished with 85–92% lactic acid (suitable for recently collected specimens) or Nesbitt's fluid (chloral hydrate 40 g, concentrated HCl (12 M) 2.5 mL, distilled water 25 mL, suitable for old alcohol-preserved specimens). The clearing process varies from specimen to specimen. It is advisable to check occasionally until the specimens become translucent. Specimens are mounted in Hoyer's medium (chloral hydrate 200 g, crystalline gum arabic 30 g, glycerol 20 mL, distilled water 50 mL) or in Heinze-PVA medium (chloral hydrate 100 g, glycerol 10 mL, polyvinyl alcohol 10 g, distilled water 60 mL, 85–92% lactic acid 35 mL). Adult females are mounted dorsoventrally, but adult males should be mounted laterally to display the taxonomically informative characters of the aedeagus (male genitalia). The male specimens can be mounted as Henderson (2001) described or repositioned laterally by gently pushing the coverslip to one side. Slides are then labelled with the collection data (i.e., an accession number, locality, host, collector, and collection date) and then put on a hot plate at ~~70~~ 40-45 °C for at least 20 minutes before identification. A longer heating time (24 hr) on the hot plate is required to ensure the slides are completely stable before using immersion	*Category : TECHNICAL* **(100) Chile (29 Sep 2022 8:53 PM)** De acuerdo a los autores y a experiencia en laboratorio SAG, con ese tiempo y temperatura se produciría un deterioro de la muestra, por lo que se sugiere calentar a 40-45 °C durante ese tiempo para permitir el secado y no afectar la muestra

	objectives. The slides should be completely stable before using immersion objectives. If the specimens are to be retained following identification (see section 5), the identified specimens are placed in an oven at 45–50°C for a few weeks until the medium is dry. For long-term storage, specimens mounted in Hoyer's medium on microscope slides should be sealed with a sealant. (i.e., Glyptal[3] Glyceel or Euparol). Detailed methods for mite specimen preparation and mounting are available in Walter and Krantz (2009).	
66	Mites need to be cleared for morphological examination. Clearing can be accomplished with ~~85–92%~~ 60 a 95% lactic acid (suitable for recently collected specimens) or Nesbitt's fluid (chloral hydrate 40 g, concentrated HCl (12 M) 2.5 mL, distilled water 25 mL, suitable for old alcohol-preserved specimens). The clearing process varies from specimen to specimen. It is advisable to check occasionally until the specimens become translucent. Specimens are mounted in Hoyer's medium (chloral hydrate 200 g, crystalline gum arabic 30 g, glycerol 20 mL, distilled water 50 mL) or in Heinze-PVA medium (chloral hydrate 100 g, glycerol 10 mL, polyvinyl alcohol 10 g, distilled water 60 mL, 85–92% lactic acid 35 mL). Adult females are mounted dorsoventrally, but adult males should be mounted laterally to display the taxonomically informative characters of the aedeagus (male genitalia). The male specimens can be mounted as Henderson (2001) described or repositioned laterally by gently pushing the coverslip to one side. Slides are then labelled with the collection	*Category : TECHNICAL* **(99) Chile (29 Sep 2022 8:49 PM)** Krant & Walter (2009) sugieren que la concentración de la solución acuosa de ácido láctico esté entre un 60 a 95%, proporción diferente a lo señalado en el protocolo (85-92%). Además, estos autores señalan que se debe poner en estufa, plato térmico o baño maría a 45°C para acelerar maceración, lo que no se señala en el protocolo

	data (i.e., an accession number, locality, host, collector, and collection date) and then put on a hot plate at 70 °C for at least 20 minutes before identification. A longer heating time (24 hr) on the hot plate is required to ensure the slides are completely stable before using immersion objectives. The slides should be completely stable before using immersion objectives. If the specimens are to be retained following identification (see section 5), the identified specimens are placed in an oven at 45–50°C for a few weeks until the medium is dry. For long-term storage, specimens mounted in Hoyer's medium on microscope slides should be sealed with a sealant. (i.e., Glyptal[3] Glyceel or Euparol). Detailed methods for mite specimen preparation and mounting are available in Walter and Krantz (2009).	
66	Mites need to be cleared for morphological examination. Clearing can be accomplished with 85–92% lactic acid (suitable for recently collected specimens) or Nesbitt's fluid (chloral hydrate 40 g, concentrated HCl (12 M) 2.5 mL, distilled water 25 mL, suitable for old alcohol-preserved specimens). The clearing process varies from specimen to specimen. It is advisable to check occasionally until the specimens become translucent. Specimens are mounted in Hoyer's medium (chloral hydrate 200 g, crystalline gum arabic 30 g, glycerol 20 mL, distilled water 50 mL) or in Heinze-PVA medium (chloral hydrate 100 g, glycerol 10 mL, polyvinyl alcohol 10 g, distilled water 60 mL, 85–92% lactic acid 35 mL). Adult females are mounted dorsoventrally, but adult males should be	*Category : SUBSTANTIVE* **(76) Australia (27 Sep 2022 2:14 AM)** Nail polish could be included in this list as it is easy to obtain

	mounted laterally to display the taxonomically informative characters of the aedeagus (male genitalia). The male specimens can be mounted as Henderson (2001) described or repositioned laterally by gently pushing the coverslip to one side. Slides are then labelled with the collection data (i.e., an accession number, locality, host, collector, and collection date) and then put on a hot plate at 70 °C for at least 20 minutes before identification. A longer heating time (24 hr) on the hot plate is required to ensure the slides are completely stable before using immersion objectives. The slides should be completely stable before using immersion objectives. If the specimens are to be retained following identification (see section 5), the identified specimens are placed in an oven at 45–50°C for a few weeks until the medium is dry. For long-term storage, specimens mounted in Hoyer's medium on microscope slides should be sealed with a sealant. (i.e., Glyptal[3] Glyceel Euparol or ~~Euparol)~~nail polish). Detailed methods for mite specimen preparation and mounting are available in Walter and Krantz (2009).	
66	Mites need to be cleared for morphological examination. Clearing can be accomplished with 85–92% lactic acid (suitable for recently collected specimens) or Nesbitt's fluid (chloral hydrate 40 g, concentrated HCl (12 M) 2.5 mL, distilled water 25 mL, suitable for old alcohol-preserved specimens). The clearing process varies from specimen to specimen. It is advisable to check occasionally until the specimens become translucent. Specimens are mounted in Hoyer's medium (chloral hydrate 200 g, crystalline gum	*Category : EDITORIAL* **(75) Australia (27 Sep 2022 2:13 AM)** Removal of unnecessary full stop

	arabic 30 g, glycerol 20 mL, distilled water 50 mL) or in Heinze-PVA medium (chloral hydrate 100 g, glycerol 10 mL, polyvinyl alcohol 10 g, distilled water 60 mL, 85–92% lactic acid 35 mL). Adult females are mounted dorsoventrally, but adult males should be mounted laterally to display the taxonomically informative characters of the aedeagus (male genitalia). The male specimens can be mounted as Henderson (2001) described or repositioned laterally by gently pushing the coverslip to one side. Slides are then labelled with the collection data (i.e., an accession number, locality, host, collector, and collection date) and then put on a hot plate at 70 °C for at least 20 minutes before identification. A longer heating time (24 hr) on the hot plate is required to ensure the slides are completely stable before using immersion objectives. The slides should be completely stable before using immersion objectives. If the specimens are to be retained following identification (see section 5), the identified specimens are placed in an oven at 45–50°C for a few weeks until the medium is dry. For long-term storage, specimens mounted in Hoyer's medium on microscope slides should be sealed with a ~~sealant.~~ sealant (i.e., Glyptal[3] Glyceel or Euparol). Detailed methods for mite specimen preparation and mounting are available in Walter and Krantz (2009).	
66	Mites need to be cleared for morphological examination. Clearing can be accomplished with 85–92% lactic acid (suitable for recently collected specimens) or Nesbitt's fluid (chloral hydrate 40 g, concentrated HCl (12 M) 2.5 mL, distilled	*Category : EDITORIAL* **(32) EPPO (20 Sep 2022 5:49 PM)** 1) Unnecessary comma. 2) Repeats the previous sentence. 3) Unnecessary dot. 4) Addition of a comma. 5) The end of the list of examples of sealants seems a better place for the footnote.

	water 25 mL, suitable for old alcohol-preserved specimens). The clearing process varies from specimen to specimen. It is advisable to check occasionally until the specimens become translucent. Specimens are mounted in Hoyer's medium (chloral hydrate 200 g, crystalline gum arabic 30 g, glycerol 20 mL, distilled water 50 mL) or in Heinze-PVA medium (chloral hydrate 100 g, glycerol 10 mL, polyvinyl alcohol 10 g, distilled water 60 mL, 85–92% lactic acid 35 mL). Adult females are mounted dorsoventrally, but adult males should be mounted laterally to display the taxonomically informative characters of the aedeagus (male genitalia). The male specimens can be mounted as Henderson (2001) described or repositioned laterally by gently pushing the coverslip to one side. Slides are then labelled with the collection data (i.e., an accession number, locality, host, ~~collector,~~ collector and collection date) and then put on a hot plate at 70 °C for at least 20 minutes before identification. A longer heating time (24 hr) on the hot plate is required to ensure the slides are completely stable before using immersion objectives. ~~The slides should be completely stable before using immersion objectives.~~ If the specimens are to be retained following identification (see section 5), the identified specimens are placed in an oven at 45–50°C for a few weeks until the medium is dry. For long-term storage, specimens mounted in Hoyer's medium on microscope slides should be sealed with a ~~sealant.~~ sealant (i.e., Glyptal,[3] Glyceel or ~~Euparol)~~Euparol[3]). Detailed methods for mite	

	specimen preparation and mounting are available in Walter and Krantz (2009).	
74	movable cheliceral digits greatly elongate, ~~whip-like~~whip-like (Figure 15A-C);	*Category : EDITORIAL* **(77) Australia (27 Sep 2022 2:15 AM)** Reference to suitable figures to align with other points.
74	movable cheliceral digits greatly ~~elongate~~elongate (Figure 6B), whip-like;	*Category : TECHNICAL* **(33) EPPO (20 Sep 2022 5:49 PM)** Figure 6B shows "movable digits" but the character state "whip-like" is no visible. Could an additional figure show the character state whip-like?
79	**4.3 Key to genera of Tetranychidae on *Manihot* spp.**	*Category : TECHNICAL* **(114) New Zealand (30 Sep 2022 8:39 AM)** Is this the dichotomous key mentioned previously? If so, can the connection be clearer? Does it need to be called a dichotomous key earlier or can it just be called a key, like it is here?
80	In addition to *M. tanajoa*, 56 species in 12 genera of Tetranychidae have been recorded on *M. esculenta* and other *Manihot* species so far (Migeon and Dorkeld, 2021): *Allonychus* (3 species), *Aponychus* (1 species), *Atrichoproctus* (1 species), *Eotetranychus* (1 species), *Eutetranychus* (5 species), *Mononychellus* (7 species), *Neotetranychus* (1 species), *Oligonychus* (8 species), *Panonychus* (1 species), *Petrobia* (1 species), *Schizotetranychus* (1 species)~~,~~ and *Tetranychus* (26 species). These genera can be distinguished by morphological traits.	*Category : EDITORIAL* **(34) EPPO (20 Sep 2022 5:49 PM)** Unnecessary comma.
82	1. Empodium without tenent hairs (Figures 9B–9H); female with one or two pairs of pseudanal (*ps*) setae ~~(Figures~~ (Figures 3B and 6C); male with four pairs of setae (*g* and *ps*) on genito-anal valves (Figure 4A). **2**	*Category : EDITORIAL* **(115) New Zealand (30 Sep 2022 8:41 AM)**
82	1. Empodium absent or Empodium without tenent hairs (Figures 9B–9H); female with one or two pairs of pseudanal (*ps*) setae (Figures 3B and 6C); male with four pairs of setae (*g* and *ps*) on genito-anal valves (Figure 4A). **2**	*Category : EDITORIAL* **(78) Australia (27 Sep 2022 2:16 AM)** Figure 9B illustrates example where the empodium is absent

82	1. Empodium without tenent hairs (Figures 9B–9H); female with one or two pairs of pseudanal (*ps*) setae (Figures 3B and 6C); male with four pairs of setae (*g* and *ps*) on genito-anal valves (Figure 4A). **2**	*Category : TECHNICAL* **(35) EPPO (20 Sep 2022 5:49 PM)** Could the drafting check if the text should not be 'Empodium absent (Figure 9B) or without tenent hairs (Figures 9C–H);' ?
86	3. Female with one pair of pseudanal setae; hysterosomal setae *f1* inserted in marginal area, lateral to dorsocentral setae *c1*, *d1* and *e1* (Figure 4C) ***Aponychus*** Rimando	*Category : EDITORIAL* **(18) China (28 Aug 2022 4:56 PM)** The digital part of the expression of setae name is generally subscript,and at the same time, it is also to be unified with the annotations on the attached figures
96	8. Empodial claw ending in a single tip (Figure 9C).....**9**	*Category : SUBSTANTIVE* **(92) Japan (29 Sep 2022 10:22 AM)** Suggest the addition of figure of Allonycus sp. in te Figure 9 because it will be easier to understood.
96	8. Empodial claw ending in a single tip (Figure ~~9C)~~ 9C and Figur9E)_____**9**	*Category : SUBSTANTIVE* **(91) Japan (29 Sep 2022 10:21 AM)** Figure 9E is presumed to be Panonychus sp., which corresponds to key couplet 8, because it is easier to understand if this is added to the example.
119	aedeagus with shaft mostly straight, slender, bending upward or downward apically, forming a narrow neck, with a small, usually subtriangular knob (Figure 8 and Figure ~~14.~~14);	*Category : EDITORIAL* **(36) EPPO (20 Sep 2022 5:49 PM)**
127	1. Prodorsum finely reticulate medially (Figure 10C and Figure 10E); most hysterical setae (*c1*, *c2*, *d1*, *d2*, *e1*, *e2*, *f1*, *f2, h1*) each with a finely reticulated area around setal base (Figure 11C and Figure ~~10E)~~ 11E)___**2**	*Category : EDITORIAL* **(80) Australia (27 Sep 2022 2:17 AM)** Figure 10E does not show any hysterosomal setae, Figure 11E is a better example.
127	1. Prodorsum finely reticulate medially (Figure 10C and Figure 10E); most ~~hysterical~~ hysterosomal setae (*c1*, *c2*, *d1*, *d2*, *e1*, *e2*, *f1*, *f2, h1*) each with a finely reticulated area around setal base (Figure 11C and Figure 10E) **2**	*Category : EDITORIAL* **(79) Australia (27 Sep 2022 2:17 AM)** Technical correction, see Figure 11.
139	7. Palp with terminal eupathidium about as long as wide; aedeagal knob about 3× as wide as neck; tarsus I with four (rarely five) tactile setae and one solenidion (rarely none) in proximal part ***M. manihoti*** ~~Doreste~~ Doreste, 1981	*Category : EDITORIAL* **(19) China (28 Aug 2022 4:56 PM)**

144	Idiosoma: oval, 330–480 µm long and 275–335 µm wide, from greenish to yellowish in colour when alive (Figure 2A). Dorsal idiosomal setae stout, oblanceolate (Figure 3A and Figure 5); lobes of dorsal striae strong and rounded; prodorsum striated (Figure 3A and Figures ~~5A–C) striated~~5A–C); seta *sc1* not reaching base of *sc2*; hysterosomal setae *c1*, *d1* and *e1* short, not reaching half of distances to bases of setae in next row (Figure 3A and Figure 11F); *c1* shorter than half distance between *c1* and *c1*, *d1* about one-third distance between *d1* and *d1*, *e1* shorter than half distance between *e1* and *e1*; marginal setae *c2*, *d2* and *e2* about 1.4–1.8× as long as *c1*, *d1* and *e1*, respectively; *f1* more than twice as long as *c1* or *d1* (Figure 3A and Figure 11F); striae between *e1* and *e1* varying from oblique to longitudinal, area posterior to *f2* simply striated (Figure 3 and Figures 5D–5F).	*Category : EDITORIAL* **(37) EPPO (20 Sep 2022 5:49 PM)** More appropriate location for the word "striated" and consistency within the paragraph.
145	Gnathosoma: palp with terminal eupathidium about 1.5× as long as wide (Figure 6B and Figure 13F). Peritreme usually distally straight, ending in a small bulb or sometimes a tiny hook ~~(Figure~~ (Figure 3A, Figure 6A and Figure ~~12F)~~15F).	*Category : EDITORIAL* **(93) Japan (29 Sep 2022 10:25 AM)** Figure 12F appears to be a typo. In addition, this parts are described in Figure 3A.
145	Gnathosoma: palp with terminal eupathidium about 1.5× as long as wide (Figure 6B and Figure 13F). Peritreme usually distally straight, ending in a small bulb or sometimes a tiny hook (Figure ~~6A and Figure 12F)~~6A).	*Category : EDITORIAL* **(81) Australia (27 Sep 2022 2:18 AM)** Figure 12 F is not showing the peritreme, it shows the female genital and anal regions
145	Gnathosoma: palp with terminal eupathidium about 1.5× as long as wide (Figure 6B and Figure 13F). Peritreme usually distally straight, ending in a small bulb or sometimes a tiny hook (Figure 6A and Figure ~~12F)~~15F).	*Category : TECHNICAL* **(38) EPPO (20 Sep 2022 5:49 PM)** Obviously there is an error in the figure number quoted.

148	Idiosoma: tapered posteriorly (Figure ~~2A)~~3A), 312 µm long and 167 µm wide, paler than adult female when alive. Aedeagus (Figure 8) with main shaft nearly straight, slightly curving ventrally, progressively tapering and forming a narrow neck before reaching aedeagal knob; knob with two sharp projections (Figure 8).	*Category : EDITORIAL* **(94) Japan (29 Sep 2022 10:25 AM)** Change 'Figure 2A' to 'Figure 3A'. Figure 2A appears to be a typo.
148	Idiosoma: tapered posteriorly (Figure 2A), 312 µm long and 167 µm wide, paler than adult female when alive. Aedeagus (Figure 8) with main shaft nearly straight, slightly curving ventrally, progressively tapering and forming a narrow neck before reaching aedeagal knob; knob with two sharp projections (Figure 8).	*Category : SUBSTANTIVE* **(20) China (28 Aug 2022 4:57 PM)** Length and width should be a numerical range in morphological description
153	A molecular identification method for *M. tanajoa* using restriction fragment length polymorphism of the *COI* gene was reported by Ovalle *et al.* (2020) but is not described ~~here as~~ here because DNA sequencing of *COI* is ~~used only~~ the preferred method for confirmatory diagnosis.	*Category : TECHNICAL* **(6) United States of America (18 Aug 2022 9:29 PM)** is this the intended meaning?
155	Genomic DNA should be extracted from a single specimen of any developmental stage, since infestation by more than one species on the same host plant (mixed infestation) is typical for spider mites. There are many different methods available for DNA extraction, such as the modified cetyltrimethylammonium bromide method (potassium acetate 2.5 M, pH 5.5) (Ovalle *et al.* 2020), the Qiagen DNeasy Blood and Tissue Kit[4] (de Mendonça *et al.*, 2011; Li *et al.* ~~2015),~~ 2015) and the PrepMan Ultra Sample Preparation Reagent[4] (Matsuda *et al.*, 2013). Voucher specimens should be routinely preserved in ethanol (95%–100%) or on slides after non-	*Category : EDITORIAL* **(39) EPPO (20 Sep 2022 5:49 PM)** Unnecessary comma.

	destructive DNA extraction (as detailed in Mendonça *et al.*, 2011) for any clarification needed in future integrative taxonomic studies.	
155	Genomic DNA should be extracted from a single specimen of any developmental stage, since infestation by more than one species on the same host plant (mixed infestation) is typical for spider mites. There are many different methods available for DNA extraction, such as the modified cetyltrimethylammonium bromide method (potassium acetate 2.5 M, pH 5.5) (Ovalle *et al*. 2020), the Qiagen DNeasy Blood and Tissue Kit[4] (de Mendonça *et al.*, 2011; Li *et al*. 2015), and the PrepMan Ultra Sample Preparation Reagent[4] (Matsuda *et al*., 2013). Voucher specimens should be routinely preserved in ethanol (95%–100%) or on slides after non-destructive DNA extraction (as detailed in Mendonça *et al.*, 2011) for any clarification needed in future integrative taxonomic studies.	*Category : TECHNICAL* **(7) United States of America (18 Aug 2022 9:30 PM)** Given the level of detail for morphological and molecular work, it would be helpful to include a specific protocol for nondestructive DNA extraction.
161	The above primer set may not always work for *Tetranychus* spp.; if this is the case, the following alternative primers can be used to amplify the *COI* gene (Li *et al*. 2015):	*Category : TECHNICAL* **(116) New Zealand (30 Sep 2022 8:42 AM)** Does this need further explanation? Are they not optimal for detecting Tetranychus spp. compared to Mononychellus?
178	Primer (reverse)	*Category : EDITORIAL* **(40) EPPO (20 Sep 2022 5:49 PM)** It is not clear, which primers should be used here… Folmer or others.
209	† For a final reaction volume of ~~30~~ 20 µl.	*Category : SUBSTANTIVE* **(21) China (28 Aug 2022 4:58 PM)** Ovalle et al (2020) provide an example for the amplification of COI in a total volume of 20 µL.
212	For the test result to be considered reliable, appropriate controls ~~-~~ – which will depend on the type of test used and the level of certainty ~~required -~~ required – should be considered for each series of nucleic acid extractions and PCR amplifications of the target pest. As a minimum, a positive nucleic acid control and a negative	*Category : EDITORIAL* **(41) EPPO (20 Sep 2022 5:49 PM)** Typos: replace "-" with "–" (twice) and add a space before the second hyphen.

	amplification control (no template control) should be used.	
216	***4.6.2.4 Sequence ~~edition~~ editing and ~~analyses~~analysis***	*Category : EDITORIAL* **(42) EPPO (20 Sep 2022 5:49 PM)** Suggest to change the title to 'Sequence editing and analysis'
216	***4.6.2.4 Sequence ~~edition~~ editing and analyses***	*Category : TECHNICAL* **(8) United States of America (18 Aug 2022 9:31 PM)** The correct term
217	The sequences are edited using specific software (e.g. open-source Staden Package, BioEdit). The quality of the sequences should be checked. A consensus sequence should be obtained using the sequence editing software by overlapping the forward and reverse sequences of the same DNA template. The edited sequences are compared with those available in the public DNA database GenBank using the Basic Local Alignment Search Tool (BLAST), available at the National Center for Biotechnology Information (). An identity with *M. tanajoa* equal to or higher than 97% based on a query cover higher than 90% is required to confirm species-level identification (Smith, Fisher and Hebert, 2005; Porter and Hajibabaei, 2020). One sequence of a 597 bp of the *COI* fragment is available in GenBank for an *M. tanajoa* haplotype (accession number MN913384.1) and also for the closely related species *M. mcgregori* (MN913383) and *M. caribbeanae* (MN913382.1).	*Category : TECHNICAL* **(44) EPPO (20 Sep 2022 5:49 PM)** One available sequence is not considered sufficient for identification.
217	The sequences are edited using specific software (e.g. open-source Staden Package, BioEdit). The quality of the sequences should be checked. A consensus sequence should be obtained using the sequence ~~edition~~ editing software by overlapping the forward and reverse sequences of the same DNA template. The edited sequences are	*Category : TECHNICAL* **(43) EPPO (20 Sep 2022 5:49 PM)** A reference to EPPO PM 7/129 (EPPO, 2021) can be added (https://doi.org/10.1111/epp.12724). EPPO (2021), PM 7/129 (2) DNA barcoding as an identification tool for a number of regulated pests. EPPO Bull, 51: 100-143. https://doi.org/10.1111/epp.12724

	compared with those available in the public DNA database GenBank using the Basic Local Alignment Search Tool (BLAST), available at the National Center for Biotechnology Information (). Further guidance on sequence editing and analysis may be found in Appendices 7 and 8 of PM 7/129 (EPPO, 2021). An identity with *M. tanajoa* equal to or higher than 97% based on a query cover higher than 90% is required to confirm species-level identification (Smith, Fisher and Hebert, 2005; Porter and Hajibabaei, 2020). One sequence of a 597 bp of the *COI* fragment is available in GenBank for an *M. tanajoa* haplotype (accession number MN913384.1) and also for the closely related species *M. mcgregori* (MN913383) and *M. caribbeanae* (MN913382.1).	
217	The sequences are edited using specific software (e.g. open-source Staden Package, BioEdit). The quality of the sequences should be checked. A consensus sequence should be obtained using the sequence edition software by overlapping the forward and reverse sequences of the same DNA template. The edited sequences are compared with those available in the public DNA database GenBank using the Basic Local Alignment Search Tool (BLAST), available at the National Center for Biotechnology Information (). An identity with *M. tanajoa* equal to or higher than 97% based on a query cover higher than 90% is required to confirm species-level identification (Smith, Fisher and Hebert, 2005; Porter and Hajibabaei, 2020). One sequence of a 597 bp of the *COI* fragment is available in GenBank for an *M. tanajoa* haplotype (accession number MN913384.1) and also for the closely related	*Category : TECHNICAL* **(9) United States of America (18 Aug 2022 9:33 PM)** - 97% similarity is rather low, given that only one sequence is available in GenBank. The "barcode gap" is usually ~2% difference (if it exists at all). I would not want to base a quarantine action on a barcode ID less than about 99%.

	species *M. mcgregori* (MN913383) and *M. caribbeanae* (MN913382.1).	
221	In cases where other contracting parties may be adversely affected by the diagnosis, the records and evidence of the results of the diagnosis (in particular, preserved or slide-mounted specimens, photographs of distinctive taxonomic structures, DNA extracts and photographs of gels, as ~~appropriate),~~ appropriate) should be kept for at least one year.	*Category : EDITORIAL* **(117) New Zealand (30 Sep 2022 8:43 AM)**
224	Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (INRAE), Centre de Biologie pour la Gestion des Populations (UMR CBGP), CS 30016, 34988 ~~Montferrier sur Lez~~ Montferrier-sur-Lez cedex, France (Denise Navia; email:).	*Category : EDITORIAL* **(45) EPPO (20 Sep 2022 5:49 PM)** Typos: 2 hyphens to be added.
225	Center for Tropical Research, Institute of the Environment and Sustainability, University of California, Los Angeles, 90095, CA, USA; email: ~~rahanna@ucla.edu~~ rahanna@ucla.edu or -.	*Category : EDITORIAL* **(46) EPPO (20 Sep 2022 5:49 PM)** 1) "rahanna@ucla.edu" should be in blue and underlined. 2) Typo: a space to be deleted before the final dot.
227	The first draft of this protocol was drafted by Qing-Hai Fan (Plant Health & Environment Laboratory, ~~Biosecurity~~ New ~~Zealand~~Zealand (see preceding section)), ~~Ministry for Primary Industries, New Zealand),~~ Denise Navia (Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement, ~~France)~~ France (see preceding section)) and Rachid Hanna (Center for Tropical Research, ~~University of California, Los Angeles, USA)~~USA (see preceding section)).	*Category : EDITORIAL* **(47) EPPO (20 Sep 2022 5:49 PM)** Simplification, in line with the draft diagnostic protocol for the genus Ceratitis.
228	In addition, the following experts were significantly involved in the development of this protocol: Frederic Beaulieu (Agriculture & Agri-Food Canada), Jurgen Otto (Department of	*Category : EDITORIAL* **(83) Australia (27 Sep 2022 2:22 AM)** Hasan works from Agribio Victoria.

	Agriculture, Water and the Environment, Victoria, Australia), Hasan Rahmani ~~(Department of Agriculture~~(AgriBio, ~~Water and~~ the ~~Environment~~Centre for AgriBioscience, Victoria, Australia) and Karen Mclachlan-Hamilton (entomology–diagnostic biologist, Canada).	
228	In addition, the following experts were significantly involved in the development of this protocol: Frederic Beaulieu (Agriculture & Agri-Food Canada), Jurgen Otto (Department of Agriculture, ~~Water~~ Fisheries and ~~the Environment~~Forestry, ~~Victoria~~New South Wales, Australia), Hasan Rahmani (Department of Agriculture, Water and the Environment, Victoria, Australia) and Karen Mclachlan-Hamilton (entomology–diagnostic biologist, Canada).	*Category : EDITORIAL* **(82) Australia (27 Sep 2022 2:20 AM)** Updated department name. Expert is based in NSW not Victoria.
228	In addition, the following experts were significantly involved in the development of this protocol: Frederic Beaulieu (Agriculture & Agri-Food Canada), Jurgen Otto ~~(Department of Agriculture, Water~~ and ~~the Environment, Victoria, Australia),~~ Hasan Rahmani (Department of Agriculture, Water and the Environment, Victoria, ~~Australia)~~ Australia), and Karen Mclachlan-Hamilton (entomology–diagnostic biologist, Canada).	*Category : EDITORIAL* **(48) EPPO (20 Sep 2022 5:49 PM)** Simplification, in line with what has been done in the following paragraph 229.
247	**EPPO (European and Mediterranean Plant Protection Organization)**. ~~2020~~2022. *Mononychellus tanajoa* (MONNTA). In: *EPPO global database*. Paris, EPPO. Cited July ~~2020~~2022.	*Category : EDITORIAL* **(49) EPPO (20 Sep 2022 5:49 PM)** If this is deemed appropriate (In which case all references to this quote should be corrected).
281	**Yaninek, J.S., Saizonou, S., Onzo, A., Zannou I. & Gnanvossou, D.** 1996. Seasonal and habitat variability in the fungal pathogens, *Neozygites* cf.	*Category : EDITORIAL* **(50) EPPO (20 Sep 2022 5:49 PM)** Not listed in the document. Is it part of last paragraph of pest information? Is it the source of Fig 2 C?

	floridana and *Hirsutella thompsonii*, associated with cassava mites in Benin, West Africa. *Biocontrol Science and Technology*, 6(1): 23–34.	
293	**Figure 5.** *Mononychellus tanajoa*: (A-C) variation of prodorsal striation in adult female; (D-F) hysterosoma.	*Category : EDITORIAL* **(84) Australia (27 Sep 2022 2:23 AM)** Figures 5 A-C are of the prodorsal striation, Figures 5 D-F are of the hysterosoma
315	**Figures**	*Category : EDITORIAL* **(52) EPPO (20 Sep 2022 5:49 PM)** Depending on the format settings, parts of the illustrations are cut off on the right (e.g. scale bars are missing).
318	*Source: R. Hanna, ~~International Institute of~~ Center for Tropical ~~Agriculture~~Research, University of California, Los Angeles, USA.*	*Category : TECHNICAL* **(53) EPPO (20 Sep 2022 5:49 PM)** Please see paragraphs 225, 227 and 286.
321	*Source: (A) J.S. Yaninek, (B & C) G. Goergen, International Institute of Tropical Agriculture, Nigeria*	*Category : TECHNICAL* **(54) EPPO (20 Sep 2022 5:49 PM)** Please see paragraph 280 (in line with the other sources).
330	**Figure 5.** *Mononychellus tanajoa*: (A-C) variation of prodorsal striation in adult female; (D-F) hysterosoma.	*Category : EDITORIAL* **(85) Australia (27 Sep 2022 2:25 AM)** Figures 5 A-C are of the prodorsal striation, Figures 5 D-F are of the hysterosoma
339	**Figure 8.** *Mononychellus tanajoa*, lateral view of aedeagus: **(A)** photograph; **(B)** line drawing	*Category : TECHNICAL* **(95) Japan (29 Sep 2022 10:29 AM)** It should be checked whether the (A) photograph and (B) line drawing in Figure 8 are definitely of this species. Figure 8 is in close accordance with the description in the reference [261]. However, it differs from that illustrated in Gutierrez, J. (1987) Experimental & Applied Acarology, 3: 163-168.
341		*Category : EDITORIAL* **(55) EPPO (20 Sep 2022 5:49 PM)** Is there a way to get a better quality version of the image and/or increase the size of the individual pretarsi to better show details like where the hairs insert? It does not look too good, when printed. Text could be abbreviated and written out in image description: th – tenant hairs plc – pad-like claw e – empodium pvh – proximoventral hairs
342	**Figure 9.** Types of pretarsi in Tetranychidae on *Manihot* spp.	*Category : EDITORIAL* **(56) EPPO (20 Sep 2022 5:49 PM)** Suggest to provide name of example-species per type including the information on the number of leg(s) relevant (e.g. [speciesname, III-IV in male])

345	**Figure 10.** Prodorsum of adult females of *Mononychellus* spp. **(A)** *M. bondari*; **(B)** *M. caribbeanae*;	*Category : EDITORIAL* **(57) EPPO (20 Sep 2022 5:49 PM)** Would probably benefit from using a whole page for it at good quality, since the details might get lost in print.
348		*Category : EDITORIAL* **(58) EPPO (20 Sep 2022 5:49 PM)** Right side scale bars and structure detail at arrow of C are cut off
352		*Category : EDITORIAL* **(59) EPPO (20 Sep 2022 5:49 PM)** Scale bars of C and F are cut off. Could benefit from utilizing a whole page at high enough quality to show enough detail in print.
361		*Category : EDITORIAL* **(60) EPPO (20 Sep 2022 5:49 PM)** Scale bars of C and F are cut off. Would benefit from utilizing a whole page at high enough quality to show enough detail in print