

Oriental *Arotrophora* MEYRICK (Lepidoptera: Tortricidae) and its species

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ABSTRACT. *Arotrophora* MEYRICK known as far from 10 Australian species is recorded from the Oriental region. *Tortrix semifulva* MEYRICK is transferred from *Tortrix* auct. to *Arotrophora* and 16 other species are described as new in this genus: *Arotrophora hongsona* sp.n., *A. khasiasana* sp.n., *A. khatana* sp.n., *A. charassapex* sp. n., *A. paiana* sp. n., *A. khunmaei* sp. n., *A. cherrapunji* sp.n., *A. inthanona* sp.n., *A. gilligani* sp. n., *A. charopa* sp. n., *A. kudasanga* sp. n., *A. obrimsocia* sp. n., *A. bernardmyo* sp. n., *A. utarana* sp. n. from the Oriental region, and *A. fijigena* sp. n., *A. tubulosa* sp. n. from Fiji. The systematic position of *Archigrapta* MEYRICK is proposed and the the Australian "Cnephasiini" is reconsidered.

KEY WORDS: Tortricidae, Tortricinae, *Arotrophora*, new species, Oriental region, Fiji.

INTRODUCTION

Arotrophora was erected by MEYRICK as a composite grouping. Then COMMON (1963) revised this genus and preserved in it only three MEYRICK's species. He finally included in it nine known species, described two new species, and placed this genus in Cnephasiini. HORAK & al. (1996) also included in this genus nine species and referred them to Cnephasiini s. lat. and BROWN (2005) ten species in "Tortricinae: New Tribe 1". All these species are Australian. Now this genus is for the first time recorded from the Oriental region.

According to COMMON (1963) to the *Arotrophora* group of genera belong *Peraglyphis* COMMON, 1962, *Parastranga* MEYRICK, 1910, *Paraphyas* TURNER, 1927, *Symphugas* COMMON, 1962, *Syllomatia* COMMON, 1962, and *Tanychaeta* COMMON, 1962, all Australian. He also differentiated the group of *Taeniarchis* MEYRICK, 1931 (from Australia, New Guinea), *Drachmobola* MEYRICK, 1907 (Australia, India - Vietnam - Japan), *Mictoneura*

MEYRICK, 1881 (Australia), *Paranepsia* TURNER, 1916 (Australia), and two genera of Polyorthini, Chlidanotinae incorrectly included to his Cnephasiini, viz., *Apura* TURNER, 1916 and *Polylopha* LOWER, 1901. These groups were, however, not characterized. The inclusion of these genera in Cnephasiini was probably based chiefly on the similarities of the signum as his redescription of the tribe is a compilation of the characters of the true Cnephasiini (Holarctic) and the Australian genera.

The above mentioned genera except for *Apura* and *Polylopha* could provisionally be placed in Archipini near *Pseudargyrotoza* OBRAZTSOV, 1954 and *Drachmobola* MEYRICK, 1907 which were transferred by HORAK (1999) from Euliini (YASUDA & RAZOWSKI 1991); cf. RAZOWSKI (2008).

Besides, I am including in this group the monotypic genus *Antigraptis* MEYRICK, 1930 which characterizes with a scobinate concave signum and stalked forewing veins R3-R4-R5 and M3-CuA1. Unfortunately, this genus is known as far only from a female.

Material and note

The specimens examined are Oriental except for two ones which are from Fiji. Externally they resemble the Oriental *Tortrix semifulva* MEYRICK, 1908 which in the literature was treated usually (cf. BROWN (2005) as incertae sedis.

All specimens are housed in the Natural History Museum, London.

The numbers included in the descriptions of the labial palpus refer to the proportion of their total length to the horizontal diameter of the compound eye.

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SYSTEMATICS

Arotrophora MEYRICK, 1881

Arotrophora MEYRICK, 1881, Proc. Linn. Soc. N.S.W., **6**: 528. Type-species: *Scopula arcuatalis* WALKER, 1865, Australian (Sydney). COMMON, 1963, Austral. J. Zool., **11**(1): 87 - revision.

This genus was until now known exclusively from Australia. Now several Oriental species and two species from Fiji are included. COMMON (1963) provided its definition and

described and illustrated all known Australian species. He placed this genus in Cnephasiini, HORAK (1996) followed his interpretation and BROWN (1955) suggested that it deserves a separate tribe within Tortricinae (see also the introduction).

The venation of the Oriental species does not differ from that of the Australian *A. arcuatalis* (WALKER, 1865) illustrated by COMMON (1963). The uncus, socii, gnathos, transtillata, aedeagus, and valva are also similar to those in the mentioned species. The viculum in some Oriental species is broad and develops a pair of ventrolateral lobes and sacculus in a few species has the dorsopostbasal projections. The uncus of one studied species has terminal projections as seen in *A. diadela* COMMON, 1963. The socii are long, slender, often with very slender posterior parts, and with more or less expanding dorsal lobes. One species (*A. cheropa* sp. n.) has very broad socii with shortened distal parts. The plesiomorphic socii are known only in *A. elides* (TURNER, 1927). The signum of all known females is concave and torny; the sterigma has its anteostial part often smaller than the postostial part; the antrum is more or less large, with distinct inner sclerite. In two newly described species it is very large whilst the sterigma is small. The ductus bursae usually develops a membranous posterior sac.

***Arotrophora semifulva* (MEYRICK, 1908), comb. n.**

(Figs 25, 34)

Schoenotenes semifulva MEYRICK, 1908, J. Bombay Nat. Hist. Soc., **18**: 620. Type locality: Khasi Hills, Assam, India. *Tortrix semifulva*: CLARKE, 1958: 255 - designation of lectotype, figs.

Material

Four females from Khasias (6. IX. 1895), Khasias Hills, Assam (VI. 1896), Shillong, Assam (VI-VI. 1918), and Gunung Brinchang, Cameroon Highlands, W Malaysia (15-23. VIII. 1986).

Remarks

This species is known only from the females. Some males from Philippines probably conspecific with *semifulva* are characterized separately because there are some examples that in so distanced stands there can occur different species (cf below). Such a description should be useful for identification of the genus to which *semifulva* belongs.

***Arotrophora* sp.**

(Figs 1, 2, 35)

Description

Male genitalia (Figs 1, 2). Uncus long, slender, curved chiefly postbasally; terminal part of tegumen broad, rounded apically; socius long, very slender with broad base; gnathos moderate; vinculum built of thick membrane, with large ventrolateral lobes; valva elongate, rounded terminally; sacculus simple reaching 1/3 length of valva; transtilla with a rather shallow, finely spined dorsal emargination; aedeagus moderate; coecum penis slender, long; cornutus a slender plate.

Material

Five males from Negros Island, Philippines (6000 ft).

Remarks

The specimens from Negros Island, Philippines do not differ externally from the type specimens of *semifulva*. They all are males thus a genital comparison with that species is impossible. For other comments see *semifulva*.

***Arotrophora hongsona* sp. n.**

(Figs 3, 4, 36)

Diagnosis

Very closely related to *semifulva* but *hongsona* with shorter uncus, rounded dorsal lobe of socius, longer sacculus, and large cornutus. The new species differs from them also externally in having whitish head, thorax, and partially ground colour of forewing, and a smaller size.

Description

Wing span 14 mm. Head and proximal part of thorax whitish; labial palpus 2,5, brownish, dark brown along middle; posterior part of thorax mixed grey. Forewing slightly expanding posteriorly; costa weakly convex; apex very short; termen weakly oblique, indistinctly sinuate medially. Ground colour in basal part of wing cream with brownish and grey suffusions, limited by a convex whitish cream line; ground colour in posterior part of wing grey with dark grey reticulation, strigulation and venation; whitish grey spot at 2/3 of costa; brown grey blotch at base of costa accompanied by a paler submedian suffusion. Median fascia brownish grey, diffuse posteriorly. Cilia brown-grey with darker basal line. Hindwing pale brownish grey; cilia paler than wing.

Male genitalia (Figs 3, 4). Uncus long; dorsal lobe of socius rounded; sacculus reaching to about middle of ventral edge of valva; transtilla not narrowing medially; aedeagus short; coecum penis rather broad; cornutus a broad plate.

Female not known.

Material

Holotype male: "N. Thailand Mae Hong Son, Pai District 1240 m, Doi Mae Ya, 18. VII. 1990"; GS 31661.

Remarks

The colouration mentioned in the diagnosis may prove of lesser importance hence in this genus it shows some variation.

Etymology

The specific name refers to the type locality.

Arotrophora khasiasana sp. n.

(Figs 5, 6, 37)

Diagnosis

Related to *semifulva* and *hongsona* but *khasiasana* with not oblique termen of forewing, very short posterior part of aedeagus, and distal half of valva tapering terminally.

Description

Wing span 15 mm. Head and thorax grey cream; labial palpus ca 2; tegula more brownish cream. Forewing broad, weakly expanding terminally; costa convex; apex short; termen almost straight, weakly oblique. Ground colour yellowish cream finely strigulated and reticulated brown; costa suffused brownish; tornal and terminal area except for apical part suffused brownish grey with darker strigulation. Markings in form of weak, diffuse brownish grey remnants of median fascia. Cilia greyish, cream at apex. Hindwing creamish grey, creamer costally where fine brownish reticulation present; cilia cream, greyish in anal area.

Male genitalia (Figs 5, 6). Uncus long, strongly bent; dorsal lobe of socius subtriangular, remaining part slender, rounded apically; valva broad to middle, tapering terminad; sacculus slender, convex, without dorsobasal prominence; disc long hairy; transtilla concave dorsomedially, spiny; ventral part of vinculum weakly concave; aedeagus with short posterior part and long coecum penis; cornutus a slender sparsely thorny plate.

Female not known.

Holotype male: "India, Khasias Hills 1898-9, DOHERTY"; GS 31674.

Etymology

The name refers to the type locality, the Khasias Hills.

Arotrophora khatana sp. n.

(Figs 7, 8, 26, 38)

Diagnosis

This species is related to *khatana* and *hongsona* but with facies similar to the former; *khatana* differs from this last in grey-brown head, shorter uncus, pointed socius (however, terminally broader than that of *hongsona*), and slenderer aedeagus.

Description

Wing span 14 mm (in male paratype 13 mm, in female ca 19 mm). Head and proximal part of thorax grey-brown, remaining part creamer; labial palpus 2.5. Forewing hardly expanding terminad; costa uniformly convex; termen almost straight, not oblique. Ground colour yellow-brown, browner along costa, greyer in dorsal half of terminal area and at tornus where wings brownish; brown strigulation present. Markings ill-defined in form of a weak costal and dorsal parts of median fascia. Cilia brown. Hindwing brownish grey, cilia much paler and creamer.

Variation. Two male paratypes paler with more cream ground colour of forewing and paler dorsoterminal area distinctly reticulated brown. Female with rather well preserved median fascia and costal remnant of basal blotch.

Male genitalia (Figs 7, 8). Uncus slender; dorsal lobe of socius subtriangular, rounded, remainal part almost uniformly broad, setose; ventral concavity of vinculum weak; transtillia rather broad medially; aedeagus slender.

Female genitalia (Fig. 26). Anteostial and postostial parts of sterigma almost equally large, lateroproximal corners weak; antrum broad, slightly tapering proximally with weak inner sclerites; signum long.

Holotype male: "Thailand, Chiang Mai, Doi Chiang Dao, Den Yaa Khat, Subst, 12-14. IV. 1994"; GS 27994.

Paratypes two males from Chiang Mai, Chiang Dao 1450 m., San Pakia RFD Watershed Station, 28.IV. - 1. V. 1994 and one female from C Thailand, Khao Yai NP, Park HQ, 2-4. VI. 1988; Coll. J.D. BRADLEY, ANGOON LEWVANICH & D.S. FLETCHER"; GS 31675.

***Arotrophora charassapex* sp. n.**

(Figs 27, 39)

Diagnosis

This species is close to *khatana* as the female genitalia show, but *charassapex* is distinct by whitish colouration of the ground colour of forewing, elongate, pointed apex, and very short, posterior signum.

Description

Wing span 14 mm. Head and thorax whitish. Forewing slender; costa uniformly slightly curved outwards; apex fairly long, pointed; termen oblique, sinuate. Ground colour whitish diffusely spotted and suffused grey especially in tornal area; costa greyish to middle; dorsum brownish grey. Median fascia broad, diffuse brownish grey, ochreous beneath median call, with weak blackish marks. Cilia whitish grey. Hindwing with long, slender apex, greyish cream, darker, mixed brownish on periphery; cilia whitish grey.

Male not known.

Female genitalia (Fig. 27). Papilla analis uniformly broad throughout; sterigma rather short with rounded proximal corners; antrum tapering proximally with rather weak inner sclerite; ductus bursae slender distally, broad proximally; signum short, posterior.

Material

Holotype female: "Thailand: 1400 m, Chiang Mai, Chiang Dao, San Pakia RFD, Watershed Station, 28. IV. - 1. V. 1994; Thailand: I.J. KITCHING et al...."; GS 31673.

Etymology

The specific epithet refers to the shape of the apex; Greek: charasso - I am sharpening.

***Arotrophora paiana* sp. n.**

(Figs 9, 10, 40)

Diagnosis

This species is close to *khatana* and *khassiasana* but may be distinguished by the long, broadening apically socius. From *obrimsocia* this species differs in long, very slender and weakly sclerotized socii.

Description

Wing span 21 mm. Head and thorax grey brown tinged cream, labial palpus ca 3. Forewing rather not expanding terminad; costa rather weakly curved; termen not sinuate. Ground colour creamish preserved as a basal spot at costa, radial stria extending from mid-base to apex, and some dots along termen and costa; remaining surface suffused brownish, greyish brown in costal area. Markings atrophied. Cilia brownish interrupted cream beyond pale parts of apex and termen. Hindwing brownish with darker venation; cilia pale brownish.

Male genitalia (Figs 9, 10). Uncus long, bent basally; socius broad basally and dorsally, slender ventrally, with apical broadening; valva broad at base; sacculus slender; transtilla narrowing mediodorsally; aedeagus slender with short postmedian process.

Female not known.

Material

Holotype male: "India, Khasias Hills 1898 DOHERTY"; GS 23593.

Arotrophora khunmaei sp. n.

(Figs 28, 41)

Diagnosis

A. khunmaei is externally similar to *inthanona* but is much smaller; the female genitalia of this species are similar to *khatana* and *semifulva* but proximal corners of the sterigma in *khatana* are broadly rounded and the sclerite of antrum is short.

Description

Wing span ca 18 mm. Head brown; labial palpus 2,5, dark brown; thorax grey-brown. Forewing hardly expanding terminad; costa uniformly gently convex; apex very short; termen slightly oblique, straight. Ground colour greyish brown dotted black, with indistinct browner remnants of markings; fine black strigulae along costa; a row of dots along termen. Large brown blotch with black marks near mid-costa; three small spots postmedially. Cilia creamish brown with blackish grey parts. Hindwing brownish; cilia more whitish.

Male not known.

Female genitalia (Fig. 28). Papilla analis broadest medially; sterigma fairly large, broad, with rounded proximal corners; antrum and postmedian part of ductus bursae broad with weak inner sclerites; signum broad.

Material

Holotype female: "Thailand: 900 m, Chiang Mai, Doi Chiang Dao WS, h'way 1322 to Wiang Haeng, 3 km from Khun Mae Ngaai c'point; 15 - 16.IV. 1994, I.J. KITCHING et al."; GS 31672.

Etymology

This name refers to the type locality: Khun Mae Ngaay.

***Arotrophora cherrapunji* sp. n.**

(Figs 29, 42)

Diagnosis

This species is related to *inthanona* and *khunmaei* having similar female genitalia but subterminal part of ductus bursae in this species is sac-shaped, the antrum is shorter than in *semifulva* and much shorter than in *khunmaei*. Externally this species is distinct by bluish refractive markings and brownish ground colour of forewing.

Description

Wing span 22 mm. Head brownish cream; labial palpus 2,5, brownish; thorax brown. Forewing not expanding terminad; costa weakly, uniformly convex; termen moderately oblique, rather straight. Ground colour brownish with darker diffuse parts, dark brown in costal area where some pale dots present; multiple diffuse bluish refractive markings all over the wing; a white dot at end of median cell. Cilia cream brown. Hindwing pale brown; cilia paler.

Male not known.

Female genitalia (Fig. 29). Papilla analis rather uniformly broad; proximal corners of sterigma rounded; antrum moderately large, uniformly broad; proximal part of ductus bursae very broad, posterior rather slender with large lateral sac.

Material

Holotype female: "Assam, Cherrapunji, Native Collr"; GS 24069.

Etymology

The name refers to the type locality.

***Arotrophora inthanona* sp. n.**

(Figs 11, 12, 43)

Diagnosis

This species is closely related to *paiana* and *gilligani* but *inthanona* is distinct by its larger size, the presence of scent scales forming a long radial path on forewing, the very slender posterior halves of the socii, the median prominence of transtilla, the slenderer valva, and the longer aedeagus.

Description

Wing span 26 mm. Head and thorax brown, labial palpus 2. Forewing distinctly expanding terminally; costa weakly bent at 2/3; termen oblique, tolerably straight. Ground colour brownish with slight admixture of violet to middle, with greyish in posterior third of wing; some rust dots before middle, brown reticulation posteriorly. Markings deep brown in form of costal elements: a mark representing postbasal fascia and a subsquare median blotch; three small brown spots before apex. Cilia pale brownish. Hindwing pale brownish with long radial area of dark brown scent scales reaching end of median fascia; cilia concolorous with median part of wing.

Male genitalia (Figs 11, 12). Uncus long, slender; dorsal and median parts of socius broad, ventral part very slender; gnathos slender; ventral incision of vinculum distinct, broad; valva slender, gradually tapering terminad from beyond sacculus; sacculus with dorsobasal, rounded lobe; transtilla slightly prominent dorsomedially; dorsolateral projections of juxta large; aedeagus fairly broad.

Female not known.

Material

Holotype male: "N. Thailand: Doi Inthanon NP, 25. X.1986, 2550 m, Coll. M.G. ALLEN"; GS 25095.

Etymology

This specific name refers to the type locality.

***Arotrophora gilligani* sp. n.**

(Figs 13, 14, 44)

Diagnosis

This species is similar to *semifulva* but differs from it in the presence of dorsopostbasal blotch; male genitalia are similar to those in *paiana* but *gilligani* has broader socii, much shorter distal part of aedeagus, and distal half of valva less tapering apicad.

Description

Wing span 16 mm. Head and thorax brownish cream, labial palpus ca 1.5. Forewing slightly expanding terminally; termen straight, weakly oblique. Ground colour pale brownish cream with submedian more ferruginous diffuse shade and brown dorsopostbasal blotch; costa and posterior half of wing suffused brownish this last with browner reticulation. Markings: median fascia arch-shaped anteriorly, diffuse posteriorly. Cilia pale brownish. Hindwing pale brownish grey; cilia paler.

Male genitalia (Figs 13, 14). Uncus long, slender; socius rather broad in dorsal part, tapering ventroapically; gnathos slender; ventral incision of vinculum moderately deep; valva elongate; sacculus simple, long; distal part of aedeagus very short, with dorsal process; coecum penis rather large.

Female not known.

Material

Holotype male: "Formosa, S. ISSIKI"; GS 24794.

Etymology

This species is named for TODD GILLIGAN in recognition of his many contributions towards the study of Tortricidae through provision of the online resource at www.tortricidae.com.

***Arotrophora fijigena* sp. n.**

(Figs 15, 16, 45)

Diagnosis

Related to *paiana*, *hasiasana* and their allies but *fijigena* with brown forewing, short, broad socius, and long aedeagus.

Description

Wing span 15 mm. Head brown, thorax more grey cream. Forewing rather uniformly broad throughout; apex and termen rounded, this last convex. Wing brown with weak, elongate whitish mark in subterminal part of costa and concolorous distal parts of veins. Cilia concolorous with wing. Hindwing greyish brown, cilia similar.

Male genitalia (Figs 15, 16). Uncus long, slender with single median process; socius proportionally short, broad, broadest medially; gnathos delicate; vinculum deeply incised ventally; valva rather slender; sacculus slender, broadening basally; transtilla constricted medially; aedeagus long, produced ventroterminally; cornutus reduced.

Female not known.

Material

Holotype male: "Fiji, Viti Levu, Suva. January 1975"; GS 26433.

Etymology

This species is named after its native island Fiji; Greek: gen - descendant.

Arotrophora charopa sp. n.

(Figs 17, 18, 46)

Diagnosis

Externally this species is somewhat similar to *hasiasana* (both with broad, not expanding forewing and rounded apex); the male genitalia of *charopa* resemble those of *gilligani* but have broader aedeagus; from all known species of this genus *charopa* differs in very broad socius and ventral; process of the sacculus.

Description

Wing span ca 11 mm. Head and thorax blackish; labial palpus 1,3. Forewing slender, not expanding terminad; costa hardly convex; termen oblique, almost straight. Ground colour white with pinkish suffusions and black strigulation preserved at base of costa, beyond mid-costa and at mid-dorsum. Remaining area brownish black with bluish refractive fasciae; remnants of markings diffuse, somewhat darker than suffusions. Cilia paler than wing. Hindwing dark brown; cilia slightly paler.

Male genitalia (Figs 17, 18). Uncus long broadening basally, slender apically; socius broad, slightly tapering ventrally; arm of gnathos slender, terminal plate with sharp apex; vinculum broadly incised ventrally; valva elongate-oval with costa convex; sacculus concave postbasally, with terminal projection; transtilla thorny dorsally; aedeagus broad, short; coecum penis large; cornutus an elongate plate.

Female not known.

Material

Holotype male: "NW Thailand: 1200 m, Doi Inthanon NP km 31, 9 - 10.IX. 1988; A.M. COTTON & I.J. KITCHING, BM 1989-57"; GS 31677.

Etymology

The name refers to the bluish grey refractive markings of the forewing; Greek: charo-pos bluish.

Arotrophora kundasanga sp. n.

(Figs 19, 20, 47)

Diagnosis

The facies of *kundasanga* resembles that of *semifulva* but the male genitalia are somewhat similar to *inthanona* and *obrimsocia*. This species differs from them and all known congeners in the presence of the large dorobasal process of the sacculus.

Description

Wing span 14 mm. Head and thorax whitish; labial palpus ca 3, grey-black with black markings and pale base of third segment; tegula and collar marked with brown-black. Forewing not expanding terminad; costa weakly convex; termen oblique, straight. Ground colour cream preserved in basal half of wing, suffused and sprinkled rust, grey-brown along costa; remaining area grey brown and grey sparsely spotted grey-brown. Markings ill-defined: proximal edge of median fascia distinct, distal part diffuse. Cilia (worn) brownish. Hindwing brownish cream; cilia paler.

Male genitalia (Figs 19, 20). Uncus slender, moderately long; socius very slender with broad, rounded dorsal part; gnathos parts slender; ventral incision of vinculum weak; valva elongate; sacculus with large dorsopostbasal process; transtilla arched, without spines; aedeagus rather slender; cornutus a spiny plate with a terminal thorn.

Female not known.

Material

Holotype male: "Sabah: 1500 m, Mt. Kinabalu Nr. Kundasang golf corse, 17 - 20.V. 1989"; GS 26671.

Etymology

The specific epithet refers to the type locality.

***Arotrophora obrimsocia* sp. n.**

(Figs 21, 22, 30, 48, 49)

Diagnosis

This species differs from *semifulva* and all other congeners in the presence of white dot at the end of median cell of forewing. It is close to *bernardmyo* and *kundasanga* having dorsopostbasal lobe of sacculus; it differs from them in slender uncus, and from *kundasanga* in well sclerotized, rather broad end of socius. The female genitalia similar to *paiana* but in *obrimsocia* the sclerite of antrum is large and the ductus bursae is short.

Description

Wing span 21 mm. Head and thorax brownish; labial palpus ca 2,5, broad. Forewing expanding terminad; costa straight to beyond middle; costal fold well developed; termen weakly oblique, tolerably straight. Ground colour brownish; markings much darker than ground colour. Basal blotch and costal half of median fascia brown or blackish brown. White dot at end of median cell. On the underside the subcostal area and part of median cell from wing base blackish with specialized scales. Cilia brownish with blackish brown interruptions. Hindwing pale brownish cream, veins browner; cilia paler than wing.

Variation. Wing span 21 - 22 mm in male, 22 - 26 mm in female. Ground colour more or less dark, markings brown or strongly reduced; in two examples whitish blotch at mid-dorsum. Reverses of females without blackish scaling. Hindwing more or less dark, in females browner than in males.

Male genitalia (Figs 21, 22). Uncus slender; socius broad dorsally, with long, well sclerotized remaining parts, finely serrate posteriorly; valva elongate; sacculus with subtriangular dorsopostbasal lobe; transtilla convex medially; aedeagus fairly broad; coecum penis broad; cornutus a plate with short, sharp blade.

Female genitalia (Fig. 30). Sterigma broad with rounded proximal corners; sclerite of antrum fairly large; ductus bursae short; ductus seminalis originating from postmedian broadening of the former; signum elongate drop-shaped.

Material

Holotype male: "N. Thailand: Doi Inthanon Nt. Park., 8. III. 1998, J.D. & D.J. BRADLEY, A. LEWVANICH & S. BOONKONG"; GS 31664. Paratypes 9 males and 3 females labelled as above (one dated 22-23.V. 1987, coll. M.G. ALLEN); NW Thailand: Doi Inthanon National Park, 9-12. IV. 1988, 2100 m; one with same label but from ca 2550 m., 8.III. 1988; 2 spms from Khasias Hills, India, 1898-9, DOHERTY; one from Khasias, Assam, Native, V. 1895, DONCASTER.

Etymology

The specific name refers to the socius; Greek: obrimos - strong.

Arotrophora bernardmyo sp. n.

(Figs 23, 24, 50)

Diagnosis

This species is related to *kundasanga* and *obrimsocia* as the presence of dorsal lobe of sacculus, the shape of the valva, the transtilla, and the aedeagus show; it differs from them and other congeners except for the Australian *A. diadela* COMMON, 1963 in the terminal bifurcation of the uncus.

Description

Wing span ca 17 mm. Head and thorax brown with slight rust admixture; labial palpus ca 2; tegula dark brown. Forewing not expanding terminad; costa curved at base, then straight; termen short, rather not oblique, straight. Ground colour brownish; suffusions darker; cream dots along costa. Markings brown with indistinct rust hue, typical tortricine. Cilia brownish suffused blackish grey. Hindwing pale brownish; cilia paler.

Male genitalia (Figs 23, 24). Uncus broad basally with submedian lateral convexities and terminal bifurcation; dorsal part of socius tapering apically; remaining part slender; valva slender; sacculus with dorsopostbasal lobe finely thorny posteriorly; transtilla arch-shaped; aedeagus slender; cornutus thorn like.

Female genitalia (Fig. 31). Sterigma broad with pointed proximal corners; antrum tubular tapering proximally where rather weakly sclerotized; ductus bursae tapering distally where ductus seminalis originates.

Material

Holotype male: "Bernardmyo, Ruby Mines, Burmah, 5500 - 7000 ft. DOHERTY VI.1890, No 41028"; GS 24064. Paratype female, same label (Nr 41029); GS 24068.

Remarks

One male specimen from North Thailand (Doi Inthanon N.P., 25. V. 1985, Col. M.G. ALLEN; GS 31688) differs from the type material described above in the slenderer uncus and its projections and slender dorsal termination of socius. It is not included in the type series.

Etymology

The specific epithet refers to the type locality.

Arotrophora utarana sp. n.

(Figs 32, 51)

Diagnosis

The female genitalia of this species somewhat resemble those of *Antigraptis hemicrates* MEYRICK, 1930 from Dutch New Guinea but the facies and venation are quite different (cf. CLARKE, 1958). In forewing of *hemicrates* last three forewing radial veins and M3-CuA1 are stalked whilst in this species are separate. A similar antrum is found in *bernardmyo* in which the male genitalia are typical of *Arotrophora*. This species is very similar and close to the following species, *tubulosa*, from Fiji (cf. its diagnosis).

Description

Wing span 18,5 mm. Head ferruginous; labial palpus over 3,5, more brownish cream; thorax brownish, tegula, except for base, creamish. Forewing hardly expanding terminally; costa uniformly convex; apex very short; termen hardly oblique, straight. Ground colour cream in some parts more or less mixed ferruginous, preserved in basal third of wing, most pale at costa where forming a submedian interfascia; posterior parts of wing suffused brownish grey, with brown veins. Markings ill-defined; the most distinct is the median fascia which is brownish with some darker spots. Cilia grey. Hindwing brownish; cilia brownish cream.

Male not known.

Female genitalia (Fig. 32). Median part of papilla analis rather uniformly broad; sterigma short; antrum very large with granulate inner sclerite; distal part of ductus bursae with a small sac followed by a transverse sclerite; ductus seminalis originating from basal part of ductus bursae; signum moderately large.

Material

Holotype female: "Indonesia: Sulawesi Utara, Dumoga Bone N.P., October 1985; G. Mogogonipa Summit, 1008 m, 18 - 20. X. 1985"; GS 24083.

Etymology

This name refers to the type locality.

***Arotrophora tubulosa* sp. n.**

(Figs 33, 52)

Diagnosis

This species is very close to *utarana* but differs from it in the rounded apex of the forewing and the shorter antrum. For other characters see the diagnosis of *utarana*.

Description

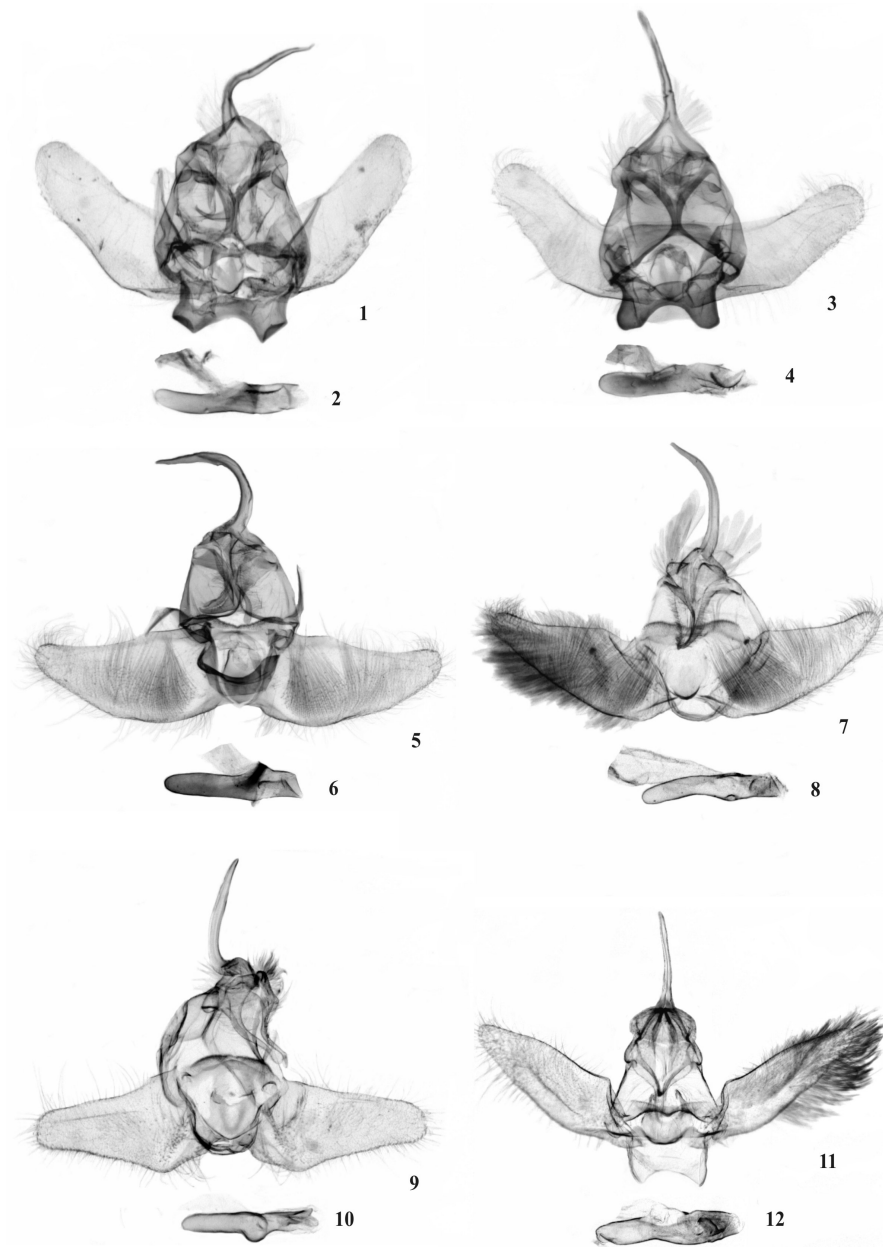
Wing span 21 mm. Head brownish cream; labial palpus 2,5, brownish, whitish below; thorax rather concolorous with head, brownish medioproximally. Forewing broadest medially; costa convex; apex rounded; termen convex near middle. Ground colour brownish with pink-violet hue densely strigulated red-brown. Basal area except for dorsum white with blackish spot at costa followed by yellowish suffusion similar to this in the dorsal part of this blotch; distal edge of white area blackish. Cilia grey-brown, whitish at apex. Hindwing brownish, paler basally; cilia concolorous with middle of wing.

Male not known.

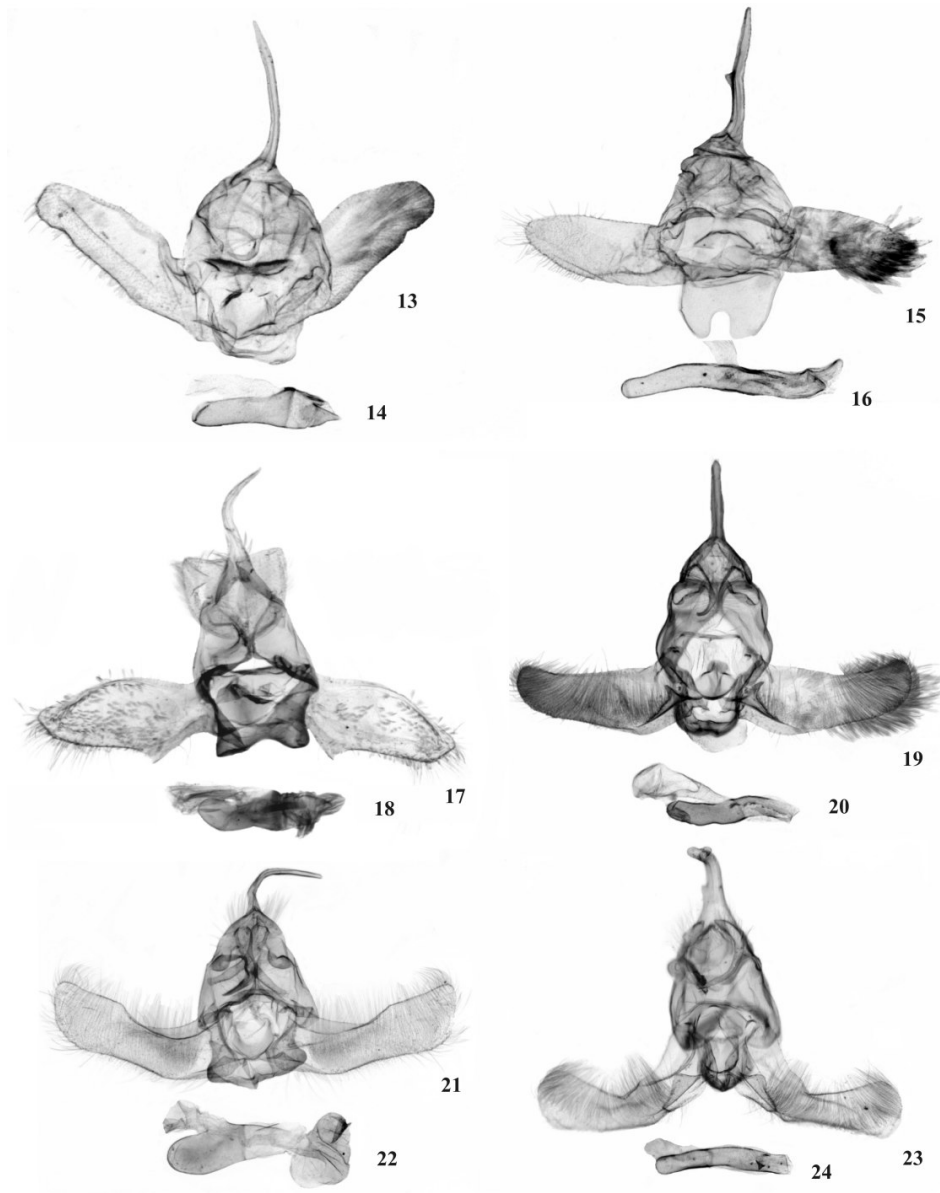
Female genitalia (Fig. 33). Posterior parts of papillae anales slender; antrum tubular, tapering proximad; distal part of ductus bursae with a well developed sclerite and a bulbous sac at its proximal edge.

Etymology

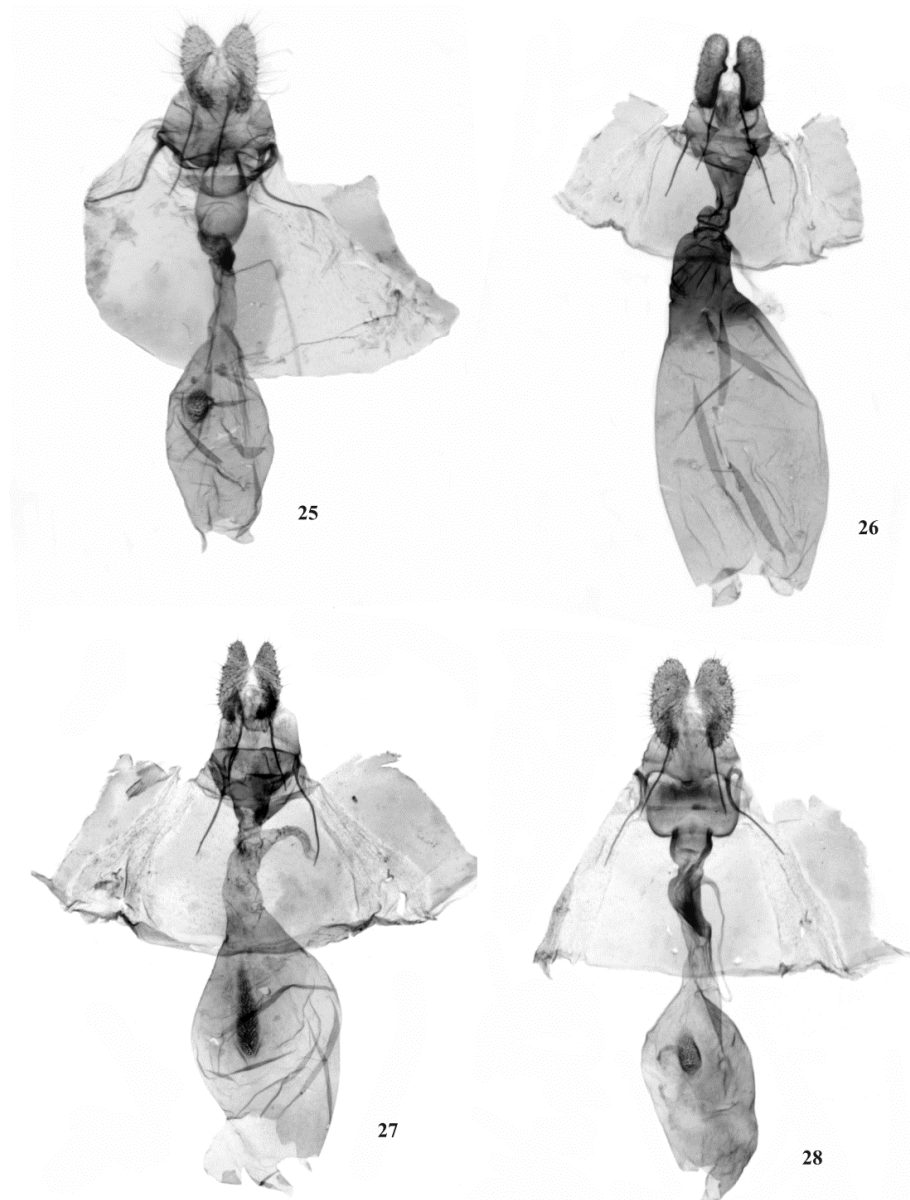
The specific epithet refers to the shape of the antrum; Latin: tubulus - small tube.



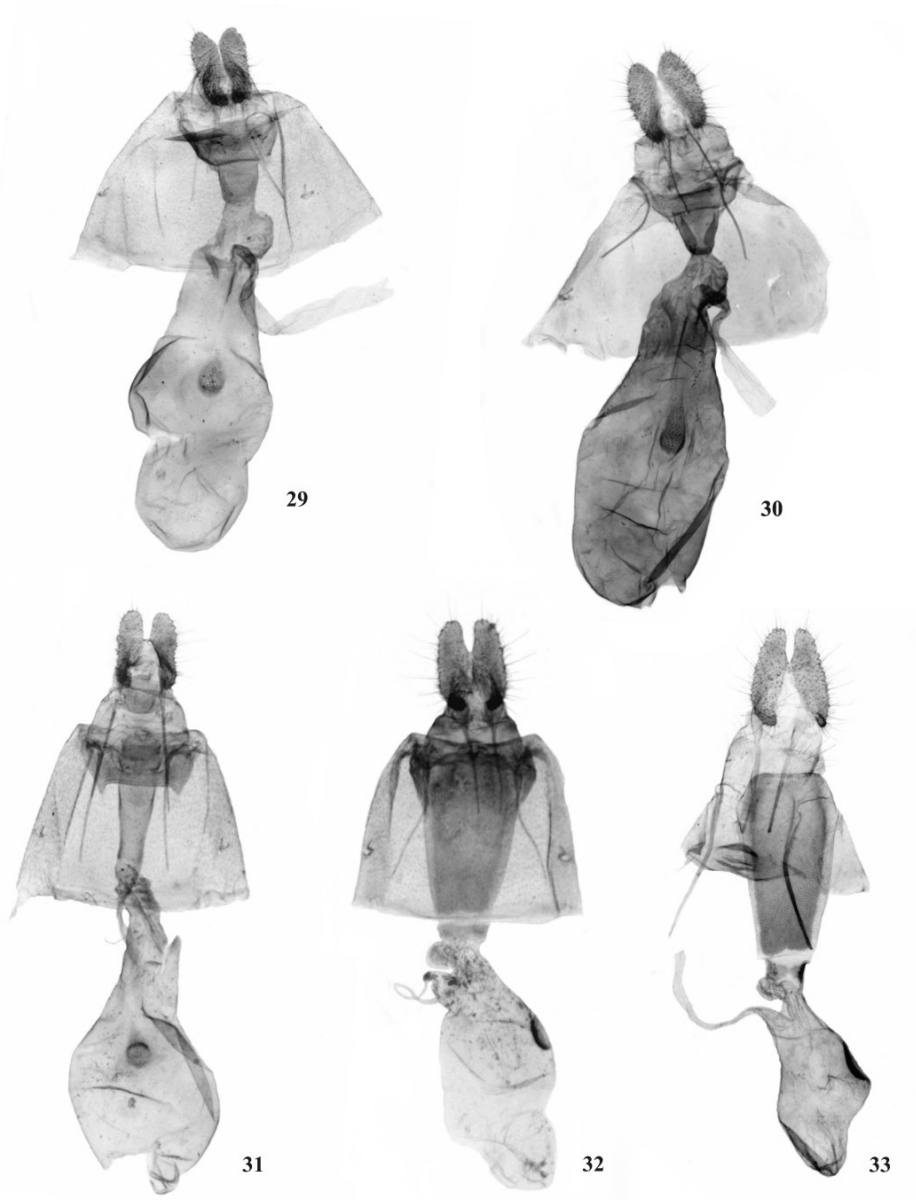
Figs 1-12. Male genitalia of *Arotrophora* MEYRICK: 1, 2 - *A. sp.* near *semifulva* (MEYRICK), Negros Island, Philippines; 3, 4 - *A. hongsona* sp.n., holotype; 5, 6 - *A. khasiasana* sp. n., holotype; 7, 8 - *A. khatana* sp. n., holotype; 9, 10 - *A. paiana* sp. n., holotype; 11, 12 - *A. ithanona* sp. n., holotype.



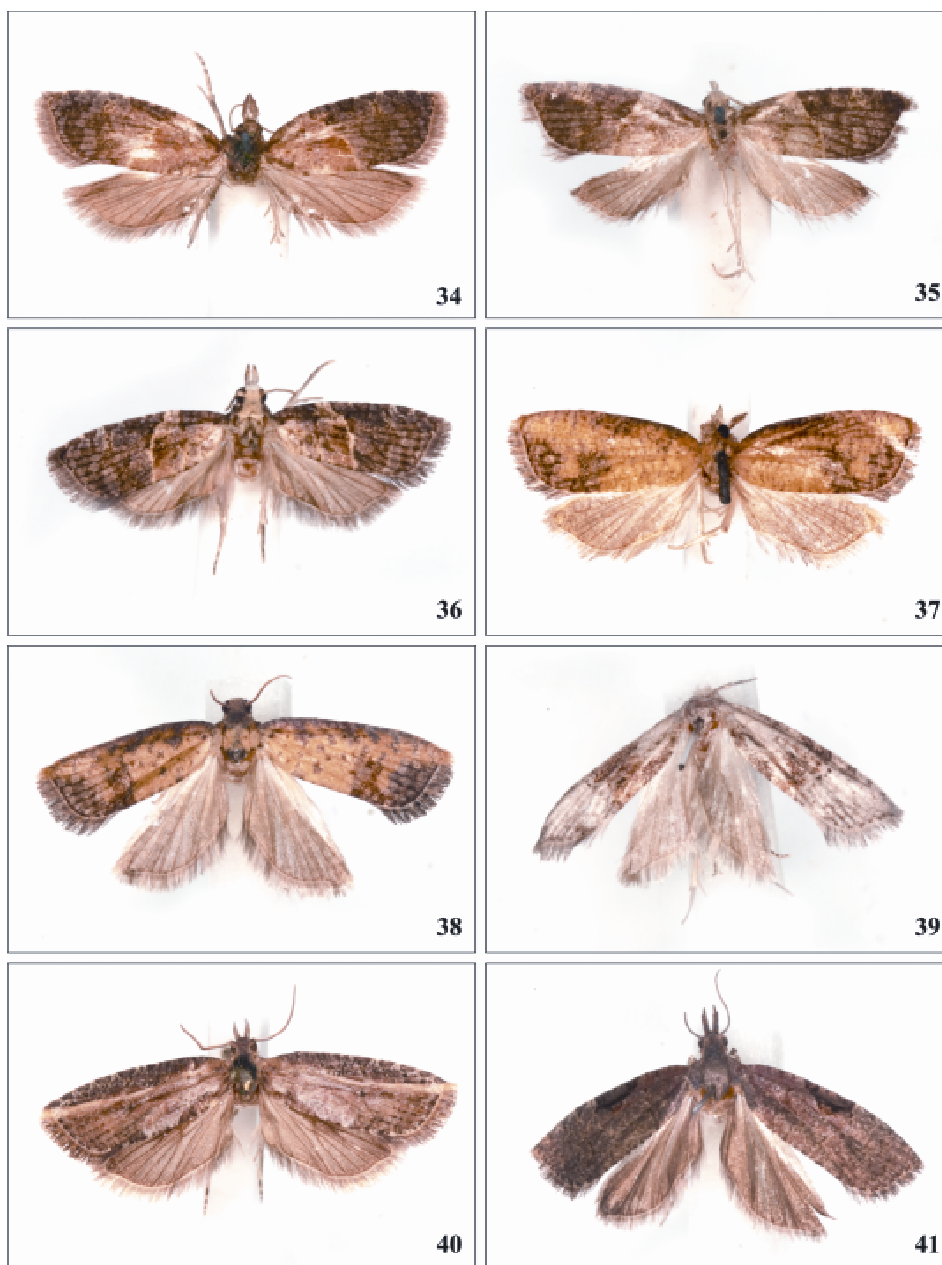
Figs 13-24. Male genitalia of *Arotrophora* MEYRICK: 13, 14 - *A. gilligani* sp.n., holotype; 15, 16 - *A. fijigena* sp. n., holotype; 17, 18 - *A. cheropa* sp. n., holotype; 19, 20 - *A. kudasanga* sp. n., holotype; 21, 22 - *A. obrimsocia* sp. n., holotype; 23, 24 - *A. bernardmyo* sp. n., holotype.



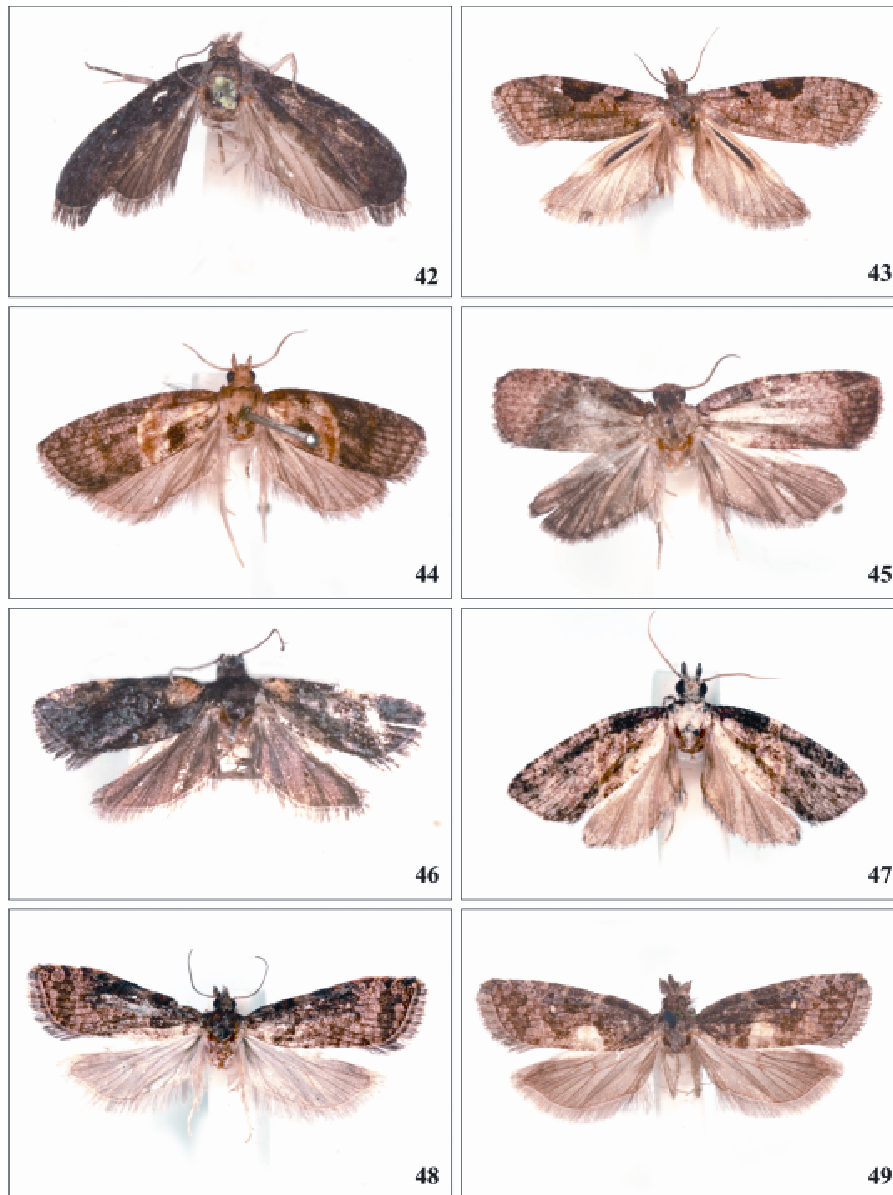
Figs 25-28. Female genitalia of *Arotrophora* MEYRICK: 25 - *A. semifulva* (MEYRICK), Khasi Hills, Assam; 26 - *A. khatana* sp. n., paratype; 27 - *A. charassapex* sp. n., paratype; 28 - *A. khunmaei* sp. n., holotype.



Figs 29-33. Female genitalia of *Arotrophora* MEYRICK: 29 - *A. cherrapunji* sp. n., holotype; 30 - *A. obrimsocia* sp. n., paratype; 31 - *A. bernardmyo* sp. n., paratype; 32 - *A. utarana* sp. n., holotype; 33 - *A. tubulosa* sp. n., holotype.



Figs 34-41. Adults of *Arotrophora* MEYRICK: 34 - *A. semifulva* (MEYRICK), Assam; 35 - *A. sp.* near *semifulva* (MEYRICK), Negros Islands, Philippines; 36 - *A. hongsona* sp. n., paratype; 37 - *A. khasiasana* sp. n., paratype; 38 - *A. khatana* sp. n., paratype; 39 - *A. charassapex* sp. n., holotype; 40 - *A. paiana* sp. n., paratype; 41 - *A. khunmaei* sp. n., holotype.



Figs 42-49. Adults of *Arotrophora* MEYRICK: 42 - *A. cherrapunji* sp. n., holotype; 43 - *A. inthanoma* sp. n., paratype; 44 - *A. gilligani* sp. n., holotype; 45 - *A. fijigena* sp.n., holotype; 46 - *A. cheropa* sp. n., holotype; 47 - *A. kundasanga* sp. n., holotype; 48 - *A. obrimsocia* sp. n., holotype; 49 - *A. obrimsocia* sp. n., paratype.



Figs 50-52. Adults of *Arotrophora* MEYRICK: 50 - *A. bernardmyo* sp.n. holotype; 51 - *A. utarana* sp. n., holotype; 52 - *A. tubulosa* sp. n., holotype.

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