



Taxonomic study of genus *Palpita* (Crambidae: Lepidoptera) from Tamil Nadu

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ABSTRACT

Study was conducted to collect the species under the genus *Palpita* from various places of Tamil Nadu viz., Coimbatore, Yercaud, Kodaikanal, Ooty, Anaikatty and Periyakulam and recorded a total of three species under the genus *Palpita* viz., *P. vitrealis*, *P. annulata* and *P. nigropunctalis*.

Keywords: *Palpita*, Crambidae, Spilomelinae, Genitalia, Distribution

Received 29.07.2019

Revised 19.08.2019

Accepted 02.09. 2019

INTRODUCTION

The family Crambidae contains 9,654 species classified into 1,018 genera in [1] but many more species are undescribed, especially in the tropics. The genus *Palpita* is coming under the subfamily Spilomelinae was the largest subfamily in the Pyraloidea. *Palpita* comprises 146 described species mainly in the Neotropical, Afrotropical, Oriental and Australian regions [2]. After the monumental works of Hampson [3] there is a dearth of information on crambid fauna in Tamil Nadu. The present study is aimed to identify the species distribution of *Palpita* from different parts of Tamil Nadu.

MATERIAL AND METHODS

Insect light trap collections were undertaken at TNAU, Coimbatore; Anaikatti; Horticultural Research Station, Ooty and Yercaud; Central Sheep and Wool Research Institute (CSWRI), Mannavanur and Kavunji, Kodaikanal; Horticultural College and Research Institute, Periyakulam. Collection of moths was carried out with white moth cloth (1.5 x 5.5 m) and mercury lamp (400 Watts) from 6.00pm to 6.00am. The insects were curated and labeled as per Johnson and Triplehorn [4]. The moths were identified as per Hampson [3] and by comparing with reference collection of IBL, TNAU, Coimbatore. The generic and species nomenclature follows Beccaloni [5] and Nuss [2].

RESULTS

In the present study three species viz., *Palpita annulata*, *P. nigropunctalis*, *P. vitrealis* were collected from different locations of Tamil Nadu. The genus *Palpita* comprises white coloured species and extraordinarily conspicuous owing to the presence of a symmetrical pair of prominent, hollow, thorn-like spines, which represent signa. The morphological characters of the genus *Palpita* includes medium sized, pure white, antenna filiform, labial palpi upward. Forewing vein R₃, R₄ stalked, R₅ free. In hindwing, Sc+R₁ thickened basally, anastomosed with R_s after its origin from upper angle of cell and ends on costa near apex.

***Palpita annulata* (Fabricius, 1794)**

Male genitalia: Uncus long and narrow apically with setose. Gnathos absent; subscaphium well developed; shorter than uncus. Tegumen dome shaped, moderately sclerotized; vinculum broad, well sclerotized; saccus broad, V shaped. Valva long and broad, costa prominent, sclerotized; sacculus broad, prominent and sclerotized with spine-like projections and a flange reaching costa. Transtilla sclerotized,

juxta spine-like, weakly sclerotized. Aedeagus long, vesica composed of long, narrow, sclerotized cornuti ending into a spine at distal end.

Female genitalia: Anal papillae narrow, rounded lobes with setae. Posterior apophyses almost equal to anterior apophyses, slender; anterior apophyses long, wide at the base. Ostium weakly sclerotized, prominent; ductus seminalis originate from corpus bursae. Ductus bursae long and wide; weakly sclerotized; corpus bursae oblong, membranous; two long spine-like signum.

***Palpita nigropunctalis* (Bremer, 1864)**

Male genitalia: Uncus short, slender and drooping. Gnathos absent. Tegumen dome shaped; vinculum narrow towards saccus; saccus broad, V shaped. Valvae long and broad, membranous; costa tubular, prominent; sacculus broad, prominent and weakly sclerotized and ends with arms at distal end reaching half of valva; harpe absent. Transtilla curved, juxta rod-like; hair pencil with long, bunch of fine hairs extend beyond valve. Aedeagus long and slender, vesica with sclerotized rod-like cornuti with arc shaped bunch of spines at tip.

Female genitalia: Anal papillae fringed with short and long setae. Posterior apophyses short; anterior apophyses long and slender. Ostium weakly sclerotized, prominent; ductus seminalis originate at caudal end of ductus bursae. Ductus bursae short and membranous; corpus bursae elongate, membranous; two long moderately sclerotized thorn-like signum.

***Palpita vitrealis* (Rossi, 1794)**

Male genitalia: Uncus long and narrow, apex enlarged and dorsally with patch of short setae. Gnathos absent; subscaphium well developed; shorter than uncus. Tegumen long, weakly sclerotized; vinculum moderately long; saccus broad, U shaped. Valva long and broad, costa weakly sclerotized, prominent; sacculus broad at base, prominent and tip ends with sharp spine-like process; another sclerotized sacculus process running towards costa with pointed tip; harpe absent. Transtilla long, membranous lateral expansion meeting at mid-line; juxta sclerotized hook-like structure; hair pencil with long bunch of hairs extend beyond valva. Aedeagus moderately long, vesica with two well sclerotized rod-like cornuti.

Female genitalia: Anal papillae with short and long setae. Posterior apophyses very short; anterior apophyses long. Ostium round, prominent and sclerotized; ductus seminalis originate at caudal end of ductus bursae. Ductus bursae broad at base; membranous; corpus bursae longer than ductus bursae, membranous; two long sclerotized spine-like signum with triangular base.

Plate 1. Female genitalia of the genus *Palpita*

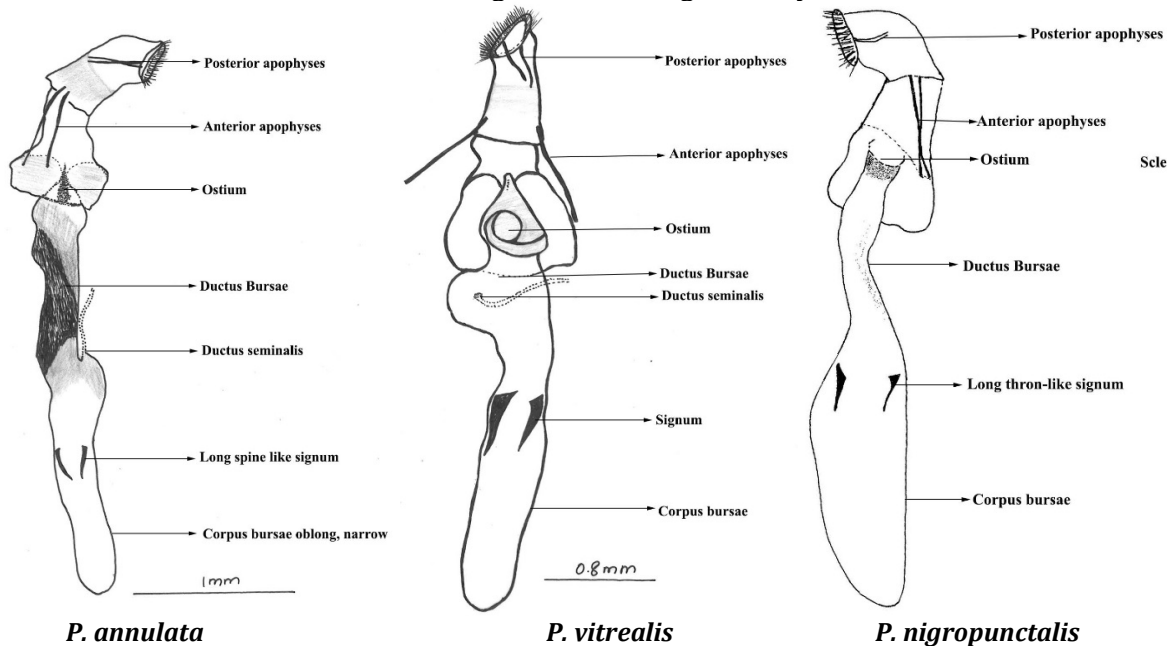
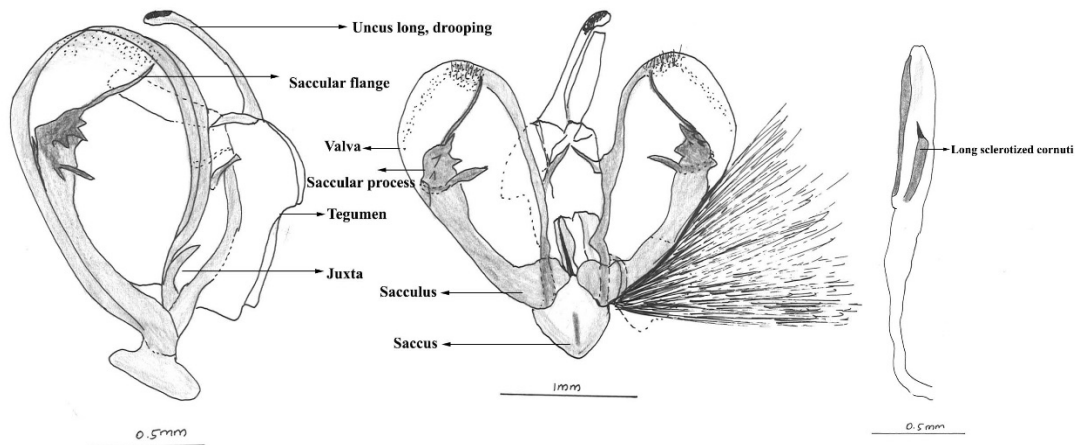
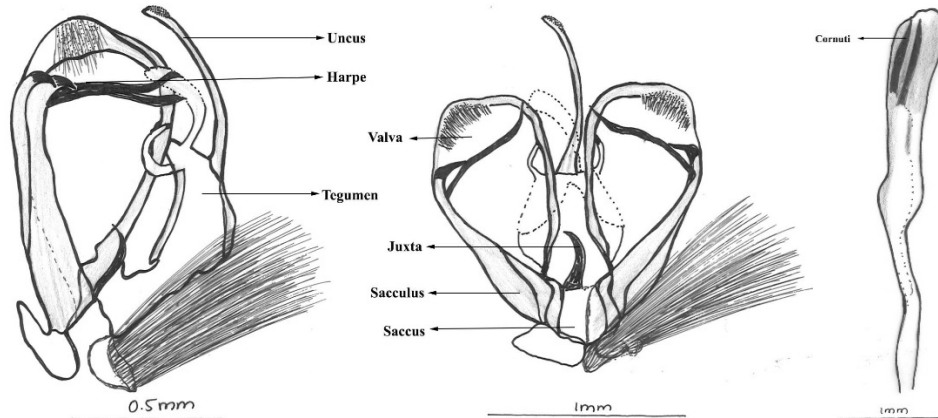


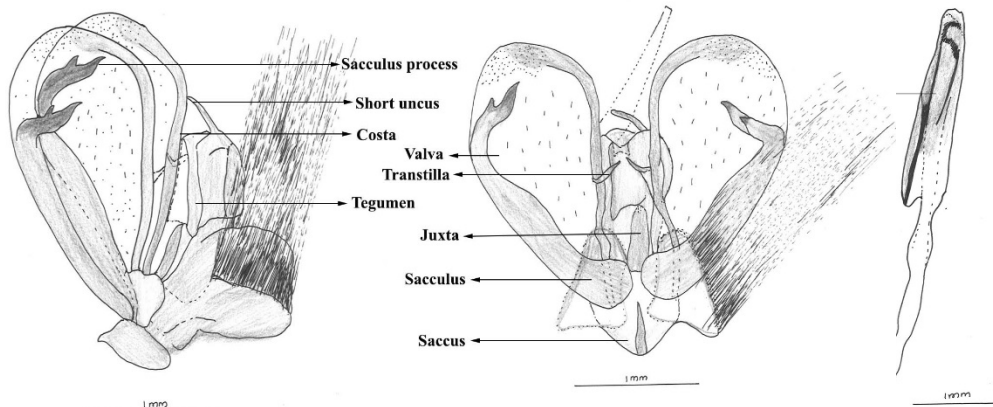
Plate 2. Male genitalia of the genus *Palpita*



a. *Palpita annulata*



b. *Palpita vitrealis*



c. *Palpita nigropunctalis*

DISCUSSION

In the ♂ genitalia, the valva short, oval and without any spine below the base of costa and a dorsally directed armature which arises from the sacculus region. The saccular armature further consists of one or more flanges or it may be large or complex. Munroe [6] revalidated and diagnosed the genus *Palpita* Hubner with a remark that *Palpita* complex remain unresolved for a pretty long time. In *P. vitrealis* ♂ genitalia with sacculus broad at base, prominent and tip ends with sharp spine-like process; another sclerotized saccular process running towards costa with pointed tip. Aedeagus with two well sclerotized rod-like cornuti. *P. annulata* sacculus broad, prominent with spine-like projections and a flange reaching costa; aedeagus with long, sclerotized cornuti ending into spine at distal end. *P. nigropunctalis* sacculus broad, prominent, weakly sclerotized and ends with arms at distal end reaching half of valva; aedeagus with sclerotized rod-like cornuti with arc shaped bunch of spines at tip. Kirti and Rose [7] studied and

discussed Indian species of the genus *Palpita*. Rose [8] studied the type species of *P. vitrealis* from North India. Inoue [9] described two new species *P. asiaticalis* and *P. perunionalis*. *P. asiaticalis* was closely related to *P. nigropunctalis* as uncus short, rod-like; saccular process reaching halfway of valva while in *nigropunctalis* rod-like process of uncus, very small, membranous; saccular process reaching nearer to costal margin. *P. perunionalis* is closely related to *P. vitrealis* as the length of apical process of harpe about two-third of dorsal one, while in *vitrealis* it is about one-third and ventral one more straight and signum longer than in *vitrealis*.

CONCLUSION

Palpita is one of the most diverse groups in the subfamily Spilomelinae. For better conservation practices, it is essential to make exhaustive studies on *Palpita* from various locations with different climatic conditions. With proper identification and documentation, reliable data for conservation and management of different habitats can be generated.

ACKNOWLEDGEMENT

The authors are thankful to TNAU for carrying out this research and UGC for financial support is gratefully acknowledged.

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CITATION OF THIS ARTICLE

S.Rathikannu and N. Chitra. Taxonomic study of genus *Palpita* (Crambidae: Lepidoptera) from Tamil Nadu. *Bull. Env. Pharmacol. Life Sci.*, Vol 8 [10] September 2019: 64-67