

## AN INVENTORY OF PYRALOIDEA LATREILLE, 1809 (LEPIDOPTERA : HETEROCCERA) FROM CHHATTISGARH

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**ABSTRACT :** A consolidated 49 species of Pyraloidea Latreille, 1809 under 42 genera of 7 subfamilies have been reported from Chhattisgarh in the present communication by compiling past information and present sampling. The inventory reflects 20 and 18 species new to Central India and Chhattisgarh, respectively with 10 data deficient species having unclear distribution pattern in India. The present record of *Palpita annulifer* Inoue, 1996 is its first time locality report in India, since no previous literature mentioned about any particular Indian state, region or locality as its distribution. Moreover, the present study shows significant southward range extension of *Locastra muscosalis* Walker, 1865 (Pyralidae) and *Pycnarmon alboflavalis* (Moore, 1888) (Crambidae) to the Deccan Peninsular region from the high altitude areas of Himalayan and North East Biogeographic zones of India.

**Key words :** Central India, Chhattisgarh, Crambidae, Pyralidae, Range extension.

### INTRODUCTION

Pyraloidea Latreille, 1809, presently consisting of families Pyralidae Latreille, 1809 and Crambidae Latreille, 1810, is the third largest superfamily of Lepidoptera with about 16,000 described species worldwide (Solis, 2007). The superfamily is found almost throughout the world having maximum diversity in the tropics and majority of its species are considered as devastating pests of crops and stored grains.

Till date, the most elaborate work on Indian Pyraloidea was done by Hampson, 1896 including taxonomy and distribution of 1136 species of Pyralidae (Crambidae was not considered as separate family). Following this, several scattered works on varied aspects of the group were published by contemporary authors. In 2006, Mathew compiled all the earlier literature and synthesized an extensive inventory of Indian Pyralids listing 1646 species.

State of art knowledge of moth diversity is uneven across India with few areas or states representing bulk portion of the moths recorded from the country. Chhattisgarh, owing to its dense vegetation cover has the potential to harbour rich moth diversity. But, due to lack of proper studies the moth fauna of Chhattisgarh is under represented. Earliest of the Pyralid records from Central India are found in Cotes & Swinhoe (1889) and Hampson (1896). Following these, no mentionable studies were conducted in the region till late twentieth century. Few Pyralid records can be found in scattered works on the moth fauna of a particular region or Protected Areas of Chhattisgarh, such as Chaudhury (1995), Chandra & Nema (2006), Chandra *et al.* (2006) and Chandra & Nema (2007) provided an account of moths from Madhya Pradesh including Chhattisgarh including 67 species of Pyralidae, but none was reported from Chhattisgarh. Recently, Sambath and Chandra (2013) compiled 90 species of moths belonging to 79 genera under 15 families exclusively from Chhattisgarh including 13 species of Crambidae pertaining to 10 genera and 3 subfamilies. The present study aims to document and update

the Pyraloidea richness of Chhattisgarh by compiling previous literature and collection done during the present field work in different parts of the state.

### MATERIAL AND METHODS

Chhattisgarh state covering an area of about 135,194 km<sup>2</sup> extends between 17°46'-24°8' N latitude and 80°15'-84°24' E longitude in the Central Indian landscape and belongs 6A-Central highland, 6B-Chotta-Nagpur and 6C-Eastern Highlands provinces of the Deccan Peninsular biogeographic zone (Rodgers *et al.*, 2002) of India.

Moths were sampled by setting light traps with 160 W mercury bulb fixed in front of a white cloth measuring 1.5 m X 2 m at different locations in Chhattisgarh. The geographic coordinates of the sampling sites were recorded using Garmin Oregon 550 GPS which were further used for preparing maps in programme DIVA-GIS version 7.5 (Fig. 1).

Identification was done following the descriptions and illustrations provided in the taxonomic literature such as Hampson (1896), Robinson *et al.* (1994) and Haruta (1995, 1998). The classification followed in this manuscript is after Solis (2007) and Scholtens & Solis (2015) and for valid names of recorded species two on-line catalogues *viz.* LEPIINDEX (Beccaloni *et al.*, 2003) and GLOBIZ database for world Pyraloidea (Nuss *et al.*, 2003-2017) were accessed.

### RESULTS AND DISCUSSION

From the present field sampling in Chhattisgarh, a total of 47 species of Pyraloidea belonging to 41 genera under 6 subfamilies have been identified including 2 species in 2 genera of 2 subfamilies from Pyralidae and 45 species under 39 genera of 4 subfamilies from Crambidae. The present inventory reports 20 and 18 species new to the Central Indian landscape and Chhattisgarh, respectively. Two species *viz.*

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Table. 1 Pyraloidea recorded from Chhattisgarh.

S.	Species	Distribution		
		Chhattisgarh	India	Elsewhere
<b>Superfamily</b> : Pyraloidea Latreille,1809				
<b>Family</b> : Pyralidae Latreille,1809				
<b>Subfamily</b> : Epipaschiinae Meyrick,1884				
1.	<i>Locastra muscosalis</i> Walker,1865**	<b>Bastar (Jagdalpur)</b> <b>Raipur (BarWLS)</b>	Mizoram, Nagaland, Sikkim, West Bengal	China, Myanmar, Sri Lanka, Taiwan
<b>Subfamily</b> : Pyralinae Latreille,1809				
2.	<i>Hypsopygia suffusalis</i> (Walker,1866)*	<b>Jashpur (BadWLS)</b>	Maharashtra, West Bengal	Myanmar, Sri Lanka, Thailand
<b>Family</b> : Crambidae Latreille,1810				
<b>Subfamily</b> : Acentropinae Stephens,1836				
3.	<i>Eoophyla peribocalis</i> (Walker,1859)*	<b>Jashpur (BadWLS),</b> <b>Kabirdham (BhoWLS)</b>	Eastern and North-Western Himalayas, Tamil Nadu	Aden, China, Myanmar
4.	<i>Paracymoriza vagalis</i> (Walker,1865)#	<b>Korba (Lemru)</b>	Himachal Pradesh, Maharashtra, Punjab, Tamil Nadu, Uttarakhand	Borneo, China, Japan, Java, Malaysia Myanmar, Nepal, Sri Lanka, Sumatra, Taiwan, Thailand
5.	<i>Parapoynx fluctuosalis</i> (Zeller,1852)#	<b>Bilaspur (Khudia),</b> <b>Korba (Lemru),</b> <b>Jashpur (Jashpur)</b>	Throughout India	Africa, Madagascar, throughout the tropical and subtropical zones
6.	<i>Parapoynx stagnalis</i> (Zeller,1852)#	<b>Bilaspur (Khudia),</b> <b>Durg (Balod), Jashpur (BadWLS),</b> <b>Kabirdham (BhorWLS),</b> <b>Koriya (GGNP)</b>	Throughout India	Australia, Java, Myanmar, South Africa, Sri Lanka
<b>Subfamily</b> : Crambinae Latreille,1810				
7.	<i>Surattha fuscilella</i> Swinhoe,1895	Raipur <sup>1</sup>	Maharashtra	
<b>Subfamily</b> : Pyraustinae Meyrick,1890				
8.	<i>Lamprophaia ablaetalis</i> (Walker,1859)*	<b>Jashpur (BadWLS),</b> <b>Koriya (GGNP)</b>	Maharashtra, Sikkim, Tamil Nadu	Africa, Australia, Borneo, Celebes, China, Myanmar, Pakistan, Philippines, Sumbawa, Taiwan
9.	<i>Pyrausta panopealis</i> (Walker,1859)*	<b>Kabirdham (BhoWLS)</b>	Karnataka, Maharashtra, Manipur, Meghalaya, Tamil Nadu	Africa, America, Australia, China, West Indies
<b>Subfamily</b> : Spilomelinae Guenee,1854				
10.	<i>Antigastra catalaunalis</i> (Duponchel,1833)#	<b>Jashpur (BadWLS),</b> <b>Kabirdham (BhoWLS)</b> <b>Koriya (GGNP)</b>	Throughout India	Aden, Europe, East and West Africa, Myanmar, Sri Lanka, Syria
11.	<i>Agathodes ostentalis</i> (Hubner,1832)	Bilaspur (AWLS <sup>3</sup> ), <b>Durg (Badbhum),</b> <b>Kabirdham (BhoWLS)</b>	Throughout India	Java, Myanmar, Sri Lanka, Sumbawa
12.	<i>Agrotera basinotata</i> Hampson,1891*	<b>Korba (Lemru)</b>	Maharashtra, Punjab, Tamil Nadu	Australia, Borneo, Celebes, China, Japan, Korea, Sri Lanka, Sumatra, Thailand
13.	<i>Agrotera scissalis</i> Walker,1865*	<b>Jashpur (BadWLS)</b>	Maharashtra, Meghalaya, Nagaland, Sikkim	Java, Myanmar, Sri Lanka
14.	<i>Botyode siasialis</i> Guenée,1854#	<b>Kabirdham (BhoWLS),</b> <b>Surguja (Mainpat)</b>	Throughout India	Africa, Australia, Baluchistan, Borneo, China, Indonesia, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Vietnam.
15.	<i>Bradina admixtalis</i> (Walker,1859)#(DD)	<b>Jashpur (BadWLS)</b>	Throughout India	Africa, Australia, Japan, Myanmar, New Guinea, New Zealand Perak, Sri Lanka.
16.	<i>Cirrhochrista brizoalis</i> (Walker,1859)#	<b>Bastar (Jagdalpur),</b> <b>Korba (Lemru)</b>	Madhya Pradesh, Maharashtra, N.W. Himalayas, Tamil Nadu	Australia, Borneo, China, Japan, Sulawesi, Taiwan
17.	<i>Cnaphalocrocis medinalis</i> (Guenée,1854)#	<b>Bilaspur (Khudia),</b> <b>Korba (Lemru)</b>	Madhya Pradesh, Maharashtra	Australian, Japan, Throughout the Oriental region
18.	<i>Cydalima laticostalis</i> (Guenée,1854)	Bastar (ITR <sup>2</sup> ), <b>Dhamtari (SWLS),</b> <b>Durg (Badbhum, Balod),</b> <b>Kabirdham (BhorWLS),</b> <b>Korba (Lemru)</b>	Throughout India	Malaysia, Myanmar, New Hebrides, Sri Lankam Thailand

19. <i>Diaphania indica</i> (Saunders,1851)	Bastar (KVNP <sup>4</sup> ), Bilaspur (AWLS <sup>3</sup> ), <b>Durg (Balod), Korba (Lemru) Kabirdham (BhoWLS)</b>	Throughout India	Africa, Australia, Borneo, China, Japan, Java, Korea, Madagaskar, Nepal, Soudi Arabia, Tenasserim
20. <i>Gadessa nilusalis</i> (Walker,1859)*	<b>Korba (Lemru)</b>	Maharashtra, Meghalaya, Nagaland, Sikkim, S.India	Borneo, East Pegu, Flores, Japan, Java, Malaysia, Shan States, Sri Lanka
21. <i>Conogethes punctiferalis</i> (Guenée,1854)#(DD)	<b>Kabirdham (BhoWLS), Korba (Lemru), Koriya (GGNP)</b>	Throughout India	Australia, China, Japan, Malaysia, Myanmar, Sri Lanka
22. <i>Eurrhyarodes bracteolalis</i> (Zeller,1852)*(DD)	<b>Bilaspur (Khudia), Korba (Lemru)</b>	Throughout India	Africa, Australia, China, Celebes, Indonesia, Japan, Java, Myanmar, Nepal, New Guinea, New Hebrides, Sri Lanka, Taiwan
23. <i>Glyphodes bicolor</i> (Swainson,1821)#	<b>Kabirdham (BhoWLS), Korba (Lemru), Koriya (GGNP), Surguja (Mainpat)</b>	Throughout India	Africa, Australia, Malaysia, Myanmar, Sri Lanka
24. <i>Glyphodes bivitralsis</i> Guenée,1854#	<b>Koriya (GGNP)</b>	Throughout India	Australia, Borneo, Myanmar, Java Malaya, Philippines and Sri Lanka
25. <i>Glyphodes caesalis</i> Walker,1859*	<b>Bastar (Jagdalpur), Korba (Kudmura), Surguja (Mainpat)</b>	Andaman Islands, Maharashtra, Sikkim	China, Indonesia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka Thailand, Vietnam
26. <i>Herpetogramma licarsisalis</i> (Walker,1859)#	<b>Bilaspur (Khudia), Durg (Balod), Kabirdham (BhoWLS, Lalpur), Korba (Lemru), Koriya (GGNP), Surguja (Mainpat)</b>	Throughout India	Australia, Borneo, China, Fiji, Japan, Java, Syria, Sri Lanka
27. <i>Maruca vitrata</i> (Fabricius,1787)	Bastar (KVNP <sup>4</sup> ), <b>Bilaspur (Khudia), Jashpur (BadWLS), Kabirdham (BhoWLS), Korba (Lemru), Surguja</b>	Throughout India	Australian and oriental regions, Bangladesh, Neotropical and Ethiopian regions, Japan, Pakistan
28. <i>Nausinoe geometralis</i> (Guenée,1854)	Bastar (KVNP <sup>4</sup> ), Bilaspur (AWLS <sup>3</sup> )	Throughout India	Africa, Australia, China, Formosa, Java, Myanmar, Nepal, Philippines, Sri Lanka, Taiwan
29. <i>Nausinoe perspectata</i> (Fabricius,1775)	Bastar (KVNP <sup>4</sup> ), <b>Kabirdham (BhoWLS), Korba (Lemru)</b>	Throughout India	Australia, Malaysia, Myanmar, Sri Lanka, Surinam
30. <i>Notarcha quaternalis</i> (Zeller,1852)*(DD)	<b>Bastar (Jagdalpur)</b>	Throughout India	Australia, Africa, China, Malaysia, Myanmar, Nepal, Sri Lanka
31. <i>Omiodes diemenalis</i> (Guenée,1854)*(DD)	<b>Bastar (Jagdalpur), Raipur (BarWLS)</b>	Andaman Islands, Maharashtra	Borneo, Celebes, China, Fiji, Formosa, Java, Nepal, Philippines, South Africa, Sri Lanka, Sumatra, Thailand, Vietnam
32. <i>Omphisa anastomosalis</i> Guenée,1854#	<b>Jashpur (BadWLS)</b>	Andaman Islands, Karnataka, Madhya Pradesh Maharashtra, Manipur, Meghalaya, Sikkim	America, Australia, Cambodia, China, Duke of York Island, Hawaii Island, Indonesia, Java, Laos, Myanmar, Philippines, Sri Lanka, Taiwan, Thailand, Vietnam
33. <i>Palpita annulifer</i> Inoue,1996**(DD)	<b>Jashpur (BadWLS)</b>		Bhutan, Borneo, China, Indonesia Japan, Nepal, Philippines, Sulawesi, Sumatra, Taiwan, Thailand, Vietnam
34. <i>Parotis marinata</i> (Fabricius,1794) <sup>5</sup>	<b>Durg (Balod), Jashpur (BadWLS)</b>	Throughout India	Australia, Borneo, Fiji, Myanmar, Sri Lanka, Sulawesi
35. <i>Parotis pomonalis</i> (Guenée,1854)*(DD)	<b>Kabirdham (Bhoramdev WLS), Koriya (GGNP), Surguja (Mainpat)</b>	Maharashtra, Sikkim	Australia, Borneo, China, Sri Lanka, Sumbawa
36. <i>Pilocrocis barcalis</i> (Walker,1859)*	<b>Korba (Lemru), Koriya (GGNP)</b>	Maharashtra, Meghalaya, West Bengal, Tamil Nadu, Uttarakhand	Borneo, Myanmar, Sri Lanka, Thailand
37. <i>Patania balteata</i> (Fabricius,1798)*(DD)	<b>Jashpur (BadWLS), Kabirdham (Bhoramdev WLS), Korba (Lemru), Raipur (BarWLS), Surguja (Mainpat)</b>	Throughout India	China, Japan, Myanmar, Southern Europe
38. <i>Pycnarmon alboflavalis</i> (Moore,1888)**	<b>Kabirdham (Bhoramdev WLS)</b>	Andaman Islands, Arunachal Pradesh, Assam, Sikkim, West Bengal	Bhutan

39. <i>Pycnarmon cribrata</i> (Fabricius,1794)*(DD)	<b>Jashpur (BadWLS), Kabirdham (Bhoramdev WLS), Korba (Lemru)</b>	Throughout India Uttarakhand	Borneo, Celebes, China, Fiji, Flores, Formosa, Java, Laut, Myanmar, Sri Lanka, Sumbawa
40. <i>Pygospila tyres</i> (Cramer,1780)#	<b>Jashpur (BadWLS), Kabirdham (Bhoramdev WLS), Surguja (Mainpat)</b>	Throughout India	Africa, Australia, Borneo, China, Java, Malaysia, Myanmar, Nepal, New Guinea, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam
41. <i>Rehimena phrynealis</i> (Walker,1859)*(DD)	<b>Durg (Balod)</b>	Throughout India	Australia, Borneo, China, Fiji, Myanmar, Nepal, New Guinea, Philippines, Sri Lanka, Sumatra, Taiwan, Thailand
42. <i>Sameodes cancellalis</i> (Zeller,1852)	Bastar (KVNP <sup>4</sup> ), <b>Bilaspur (Khudia), Durg (Balod), Kabirdham (BhoWLS), Korba (Lemru), Raipur (BarWLS)</b>	Throughout India	Africa, Australia, Borneo, China, Fiji, Java, Malaysia, Myanmar, Nepal, Sri Lanka, Thailand
43. <i>Spola dearecurvalis</i> (Fabricius,1775)	Bastar (KVNP <sup>4</sup> ), <b>Bilaspur (AWLS<sup>3</sup>, Khudia), Durg (Balod), Korba (Lemru), Surguja (GGNP)</b>	Throughout India	Africa, Australia, China, Japan, Malaysia, Myanmar, North and South America, Southern Europe, Sri Lanka, Syria, Thailand
44. <i>Syllepte derogata</i> (Fabricius,1775)#	<b>Kabirdham (BhoWLS)</b>	Anadaman & Nicobar Islands, Madhya Pradesh, Maharashtra	Africa, Australia, China, Fiji, Japan Indonesia, Malaysia, Myanmar, Nepal, New Guinea, Samoa, Singapore, Sri Lanka
45. <i>Synclera traducalis</i> (Zeller,1852)#	<b>Bilaspur (Khudia), Korba (Lemru), Kabirdham (BhoWLS), Surguja (Tara)</b>	Throughout India	Aden, Myanmar, Palestine, South Africa, South America, Sri Lanka, Syria
46. <i>Talanga sexpunctalis</i> (Moore,1877)#	<b>Korba (Lemru)</b>	Andamans Island, Himachal Pradesh, Maharashtra, Sikkim, Tamil Nadu	Australia, Bhutan, Borneo, Celebes, China, New Britain, New Hebrides, Sri Lanka, Thailand
47. <i>Tyspanodes linealis</i> (Moore,1867)	<b>Bilaspur (AWLS<sup>3</sup>, Khudia), Raipur (BarWLS)</b>	Andaman Islands, Chhattisgarh, Himachal Pradesh, Madhya Pradesh, Sikkim	Australia, Bhutan, Sri Lanka
48. <i>Ulopeza idyalis</i> (Walker,1859)*	<b>Durg (Balod), Jashpur (BadWLS)</b>	Maharashtra, Meghalaya, Nagaland, Tamil Nadu	Borneo, Celebes, Sri Lanka, Sulawesi
<b>Subfamily : Schoenobiinae Duponchel,1846</b>			
49. <i>Scirpophaga incertulas</i> (Walker,1863)#	<b>Koriya (GGNP)</b>	Throughout India	Afghanistan, Bangladesh, Borneo, China, Japan, Java, Myanmar, Nepal, Phillipines, Singapore, Sri Lanka, Sumatra, Sulawesi, Taiwan, Thailand, Vietnam

Species new record to Central India and Chhattisgarh are marked with \* and #, respectively. Species having significant range extension are marked with \*\*. DD- Data deficient species. In Chhattisgarh distribution, localities are given in parentheses with respective districts. Distributions indicated with bold are recorded during the present sampling. Previous distribution source: 1- Hampson (1896); 2- Chaudhury (1995); 3- Chandra *et al.* (2006); 4- Chandra and Nema (2006); 5- Sambath and Chandra (2013). Abbreviation of Protected Areas : WLS- Wildlife Sanctuary; NP- National Park; AWLS- Achanakmar WLS; BadWLS- Badalkhol WLS; BarWLS- Barnawapara WLS; BhoWLS- Bhoramdev WLS; SWLS- Sitanadi WLS; KVNP- Kanger Valley NP; GGNP- Guru Ghasidas NP.

*Locastra muscosalis* Walker,1865 (Pyralidae) and *Pycnarmon alboflavalis* (Moore,1888) (Crambidae) show significant southward range extensions to the Deccan Penninsular region from the North East and Himalayan biogeographic zones of India. Other than these 47 species, one species of Crambinae, *Surattha fuscilella* Swinhoe,1895 previously reported from Raipur district (Hampson,1896) and one species of Spilomelinae, *Nausinoe geometralis* (Guenee, 1854) previously reported from Bastar and Bilaspur districts (Chandra & Nema,2006 and Chandra *et al.*,2006) are not encountered during the present study. Thus, review of literature and present data reveals a consolidated 49 species of Pyraloidea under 42 genera of 7 subfamilies from Chhattisgarh (Table.1).

Considering the vast stretch of forest cover with varied vegetation types in Chhattisgarh, the present inventory of 49 species is mere representation of the rich Pyraloid diversity expected to occur in the state. Nevertheless, this is the first ever documentation of the superfamily from Chhattisgarh reflect-

ing new distribution records including 10 data deficient species with dubious distribution pattern in India. The record of *Palpita annulifer* Inoue,1996 may be regarded as its first time locality report in India, since neither state nor particular locality was mentioned as its distribution in published literature, till date. Many species of Pyraloidea have the potential to indicate certain level of disturbances in habitats either by their mere presence or high abundance levels. Hence, proper inventory is imperative to establish as the initial step for designing robust habitat management strategies.

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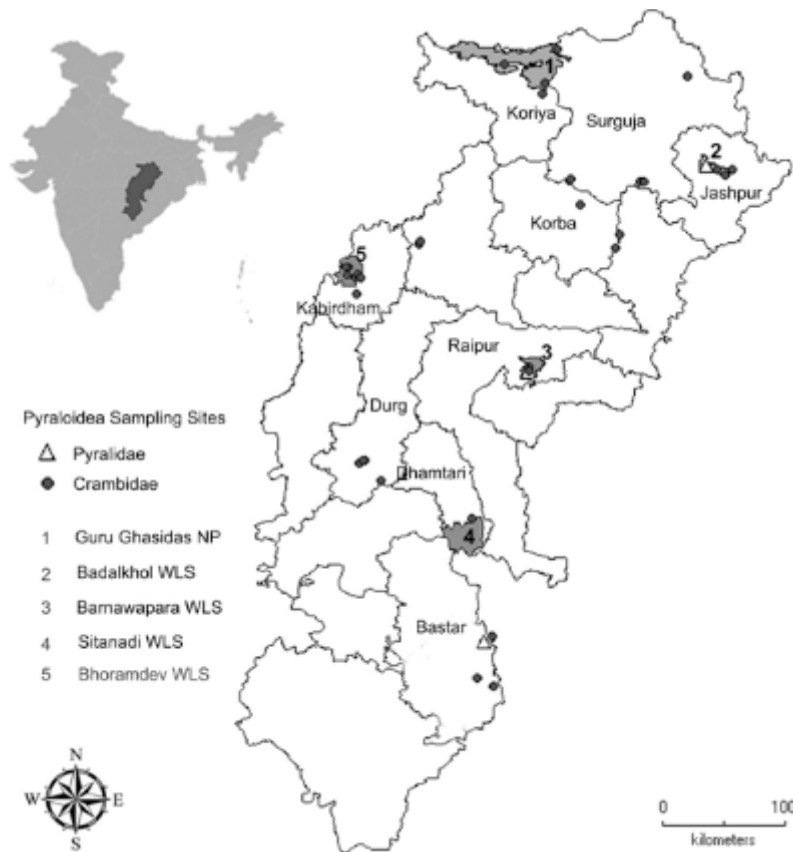


Fig. 1 Pyraloidea sampling sites in Chhattisgarh.

## REFERENCES

- Beccaloni, G.; Scoble, M.; Kitching, I.; Simonsen, T.; Robinson, G.; Pitkin, B.; Hine, A. and Lyal, C. (2003). *The Global Lepidoptera Names Index (LepIndex)*. World Wide Web electronic publication. <http://www.nhm.ac.uk/entomology/lepindex> [accessed 17<sup>th</sup> April, 2017].
- Chandra, K. and Nema, D. K. (2006). Moths of Kanger Valley National Park (Bastar : Chhattisgarh). *Records of the Zoological Survey of India*, 106(2) : 13-23.
- Chandra, K. and Nema, D. K. (2007). Insecta : Lepidoptera : Heterocera. In : *Fauna of Madhya Pradesh (including Chhattisgarh), State Fauna Series* (ed. Director, ZSI). Zoological Survey of India, Kolkata, pp. 347-418.
- Chandra, K.; Nema, D. K. and Singh, S. P. (2006). On a collection of moths from Achanakmar Wildlife Sanctuary, Chhattisgarh. *National Journal of Life Sciences*, 3 : 183-189.
- Chaudhury, M. (1995). Insecta : Lepidoptera. In : *Fauna of Indravati Tiger Reserve : Conservation area series* (ed. Director, ZSI). Zoological Survey of India, Kolkata, pp. 45-52.
- Cotes, E. C. and Swinhoe, C. (1889). *A catalogue of the Moths of India : Pyrales*. Trustees of the Indian Museum, Calcutta, 5 : 591-670.
- Hampson, G. F. (1896). *Fauna of British India, Moths*. Taylor and Francis, 4 : 1-595.
- Haruta, T. (1995). *Moths of Nepal*, Part 4, Tinea. 14 (Supplement 2). Japan Heterocerists' Society, Tokyo, p. 206.
- Haruta, T. (1998). *Moths of Nepal*, Part 5, Tinea. 15 (Supplement 1). Japan Heterocerists' Society, Tokyo, pp. 1-330.
- Mathew, G. (2006). An Inventory of Indian Pyralids (Lepidoptera : Pyralidae). *Zoo's Print Journal*, 18(7) : 2245-2258.
- Nuss, M.; Landry, B.; Mally, R.; Vegliante, F.; Trankner, A.; Bauer, F.; Hayden, J.; Segerer, A.; Schouten, R.; Li, H.; Trofimova, T.; Solis, M. A.; De Prins, J. and Speidel, W. (2003-2017). *Global Information System on Pyraloidea - GLOBIZ*. [www.pyraloidea.org](http://www.pyraloidea.org) [accessed 15<sup>th</sup> April, 2017].
- Robinson, G. S.; Tuck, K. R.; Shaffer, M. and Cook, K. (1994). *The Smaller Moths of South-East Asia*. Malaysian Nature Society, Kuala Lumpur, pp. 1-308.
- Rodgers, W. A., Panwar, H. S. and Mathur, V. B. (2002). *Wildlife and protected areas network in India : A review*. Wildlife Institute of India, Dehradun, pp. 1-44.
- Sambath, S. and Chandra, K. (2013). Moth Diversity of Chhattisgarh State, India. *Indian Forester*, 139(7) : 626-632.
- Scholtens, B. G. and Solis, M. A. (2015). Annotated Check List of the Pyraloidea (Lepidoptera) of America North of Mexico. *Zookeys*, 535 : 1-136.
- Solis, M. A. (2007). Phylogenetic studies and modern classification of the Pyraloidea (Lepidoptera). *Revista Colombiana de Entomologia*, 33(1) : 1-9.