

## REDESCRIPTION OF *AGAPE FICUS* FELDER (LEPIDOPTERA: ARCTIIDAE: AGANAINAE) FROM PAKISTAN

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### ABSTRACT

*Agape ficus* Felder is recorded from Pakistan and redescribed in detail with special reference to its head appendages, venation of fore and hind wings and female genitalia. Its systematic position is also briefly discussed.

**Key-words:** *Agape ficus* Felder, Arctiidae, genitalia, Pakistan.

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### INTRODUCTION

Moore (1882-3) described genus *Hypsa* and its two species under the family Arctiidae instead of genus *Agape*. Cotes and Swinhoe (1888) have been listed genus *Agape* and three species along with *A. ficus* under the family Arctiidae. Hampson (1892) has described genus *Agape* along with two species including *A. ficus* under the family Arctiidae recorded from Dharamshala, Sikkim and Nagas.

Chaudhry *et al.* (1966) have listed two species of *Agape*, recorded from Bangladesh and in the trunks of Walnut at Atror (Swat), Peshawar and Azad Kashmir. Dennis (1975) defined two species of *Agape* under the family Arctiidae as a pest and their control. Watson *et al.* (1980) listed genus *Agape* with his type species *Agape cyanopyga* Felder recorded from Philippines under the subfamily Aganainae of family Arctiidae. Helgard (1991) has listed and illustrated one species *Agape ficus*, recorded from Britain and Ireland. Hashmi and Tashfeen (1992) have listed *Agape ficus* under the family Arctiidae.

### MATERIALS AND METHOD

The adult specimens of *Agape ficus* Felder were collected with the help of light trap from Donga Gali, Pakistan and were identified with the help of available literature as mentioned in references. For the study of sex genital complex the abdomen was excised at the base and boiled in 10% KOH solution for about 5-minutes and then washed with tap water. The genitalia were removed from the abdomen for detail examination and later individual elements of the genitalia and the associated structures were removed as required and examined. Using ocular grid under leitz weitzler dissection microscope and diagram on a graph paper, which later were transferred on drawing sheet and finalized with pelican ink.

### RESULTS

*Genus : Agape Felder 1874*

*Agape* Felder, 1874, Reise ost. Fregatle Novara (Zool.) 2 (Ab1.2): pl. 106, fig.4; Watson *et al.*, 1980, Brit. Mus. (Nat. Hist.) 2:5

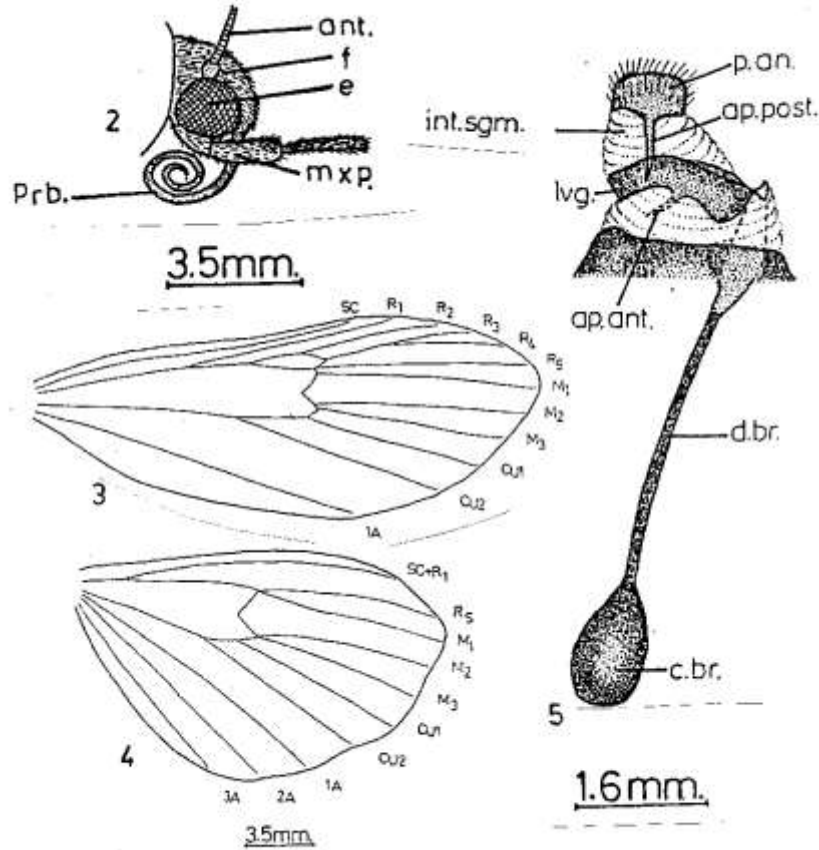
#### Diagnostic features:

Eyes moderate, frons usually rounded, palpi very long much more than head, 3<sup>rd</sup> segment longest, proboscis large and highly coiled, fore wings large with only one anal vein, hind wings small and broad, veins Rs and M1 anastomosing and originate from upper angle of cell, in females ductus bursae very long, narrowed, corpus bursae short balloon-shaped.

#### Comparative note

This genus is most closely related to *Asota* Hubner in having maxilla with 3<sup>rd</sup> segment longer than 2<sup>nd</sup> and in females apophyses posteriors much longer than anteriors but it can easily be separated from the same in having 3<sup>rd</sup> maxillary palpi slightly longer than 2<sup>nd</sup>, ductus bursae very long narrowed, corpus bursae short, balloon-shaped in

contrast 3<sup>rd</sup> maxillary palpi about 2X the length of 2<sup>nd</sup>, ductus bursae short, and corpus bursae very large in *Asota* and by the other characters as noted in the key and description.



Figs.1-5. *Agape ficus* Felder., 1. Adult, entire dorsal view; 2. head, lateral view; 3. fore wing, dorsal view; 4. hind wing, dorsal view; 5. female genitalia.

**Key to the laterings**

ant. (antenna), ap.ant. (apophysis anteriores), ap.post. (apophysis posteriores), e. (eye), fr. (frons), mx.p. (maxillary palpi), 1A - 3A. (anal vein 1, 2 and 3), c.br. (corpus bursae), Cu1 & Cu2 (cubital vein 1 and 2), d.br. (ductus bursae), int.sgm. (inter segmental membrane), lvg. (lobus vaginalis), M1-M3 (median vein 1 to 3), P.an. (Papillae anales), R1-R5 (radius vein 1 to 5), Rs.(radio-suctorial vein), Sc.(sub-costal vein), Sc+R1(sub-costal and radius vein 1).

**Types species**

*Agape cyanopyga* Felder 1874

**Distribution:**

Australian and Oriental regions.

*Agape ficus* F.

(Figs. 1-5)

*Hypsa ficus* F. 775; *Ent. Syst.* 3(2): 27; Moore, 1882-87, *Lep. Ceyl.* 2; Forsayeth, 1884, *Trans. Ent. Soc.*: 397; Hampson, 1892, *Faun. Brit. Ind.* 1: 504,

*Agape ficus* Felder, 1874, *Reis. Nov.* :1

**Colouration** Head, thorax and abdomen bright yellow except black apical segment and apex of basal segment of maxillary palpi, basal spot at each collar, basal spot at 5<sup>th</sup> to 8<sup>th</sup> abdominal segments.

**Head**

Eyes moderate, frons rounded, palpi very long more than 2X longer than head, 3<sup>rd</sup> segment narrowed and longest, slightly longer than 2<sup>nd</sup> segment, proboscis large and highly coiled (Fig.2).

**Fore wings**

Fore wings large, apically narrowed, light brown except white and orange patches near proximal area with black spot and vertical fasciae, veins R3 and R4 largely stalked, originate from apex of cell, R2 originates from below of cell, M1 originates from upper angle of cell, M3 originates from lower angle of cell, only one anal vein (1A) is present (Fig.3).

**Hind wings**

Hind wings small, broad, apex narrowed, apical margin sinuated, bright yellow except black patches including one median and a series of apical spots, veins Rs and M1 anastomosing and originate from upper angle of cell, veins M2 and M3 anastomosing and originate from lower angle of cell, Cu1 and Cu2 parallel to each other, three anal veins (A1 to A3) are present (Fig.4).

**Wing expansion**

Body size is 58-60 mm with wing expansion.

**Female genitalia**

Papillae anales small, rectangular shaped with outer margin convex, apophysis posteriors large, thorn-like, much longer than apophysis anteriors, later short, curved, spinose, lobus vaginalis truncated, ductus bursae proximally dilated, following elongated narrow tube, corpus bursae short, oblongate without cornuti (Fig.5).

**Material examined**

Three females, Pakistan: Donga gali, 6.8.2001, Syed Viqar Ali, on light, lodged at author's collection and National History Museum, Islamabad.

**Comments**

The species *Agape ficus* F. is the only one species of genus *Agape* which is recorded from Pakistan, which is distinct by its 3<sup>rd</sup> segment of maxillary palpi narrowed and very long ductus bursae proximally dilated and corpus bursae oblongate without cornuti.

This species is recorded from Donga gali in between the range of 2400 m above sea level. The population is very high during July and August and very less recorded in December and January. The temperature varies during summer 17 °C and in winter 1 °C, while average annual temperature is 12 °C. Amount of Precipitation between 1300-1400 mm or sometimes to about 1450 mm inches. Average relative humidity (mean) at 1200 UTC 61%. In this area the dominant plants are *Abies pindrow*, *Acacia modesta*, *Adhatoda vasica*, *Aesculus indica*, *Ageratum sp*, *Alastonia schollaris*, *Albizia lebbek*, *A. procera*, *Alhagi camelorum*, *Alnus nitida*, *Althaea rosea*, *Andropogon sorgham*, *Anthocephalus cadamba*, *Artocarpus integrifolia*, *A. heterophyllus*, *Bauhinia variegata*, *Berberis sp.*,

*Calotropis* sp., *Cannabis sativa*, *Cassia nodosa*, *Celtis australis*, *Cedrus deodara*, *Ceriops roxburghiana*, *Cornus macrophylla*, *Crataegus mogifera*, *cuscuta* sp., *Dillenia indica*, *Diospyros lotus*, *Dipterocarpus turbinatus*, *Dodonaea viscosa*, *Erythrina indica*, *Eugenia grandis*, *Eupatorium odoratum*, *Ficus religiosa*, *Foeniculum vulgare*, *Fraxinus excelsior*, *Gleditschia triacanthos*, *Gmelina arborea*, *Grewia microcos*, *Hevea braziliensis*, *Hibiscus abelmoschus*, *Hopea odorata*, *Hypericum cernuum*, *Kandelia roxburghiana*, *Lagerstroemia flosreginae*, *Leucaena glauca*, *Lophopetalum fimbriatum*, *Macaranga denticulate*, *Mentha logifolia*, *Morus* spp., *Mucuna pruriens*, *Murraya exotica*, *Oryza sativa*, *Oxalis corniculata*, *Oxytenanthera auriculata*, *Pancovia rubiginosa*, *Peganum harmala*, *Pennisetum typhordium*, *Picea morinda*, *Pinus gerardiana*, *P. roxburghii*, *P. wallichiana*, *Pistacia khinjuk*, *Prunus padus*, *Punica granatum*, *Quercus* spp., *Ranunculus* sp., *Ricinus communis*, *Rumex hastatus*, *Salmalia malabarica*, *Salvadora persica*, *Sapium sebiferum*, *Saraca indica*, *Sarcococca* sp., *Sesbania aegyptiaca*, *Staphylea emodi*, *Swietenia mahagony*, *S. macrophylla*, *Swintonia floribunda*, *Tamarix* spp., *Tectona grandis*, *Terminalia catappa*, *Trewia nudiflora*, *Vitex negundo*, *Vitis lanceolaria*, *Xylosoma longifolium*, *Zanthoxylum* sp., *Zizyphus jujuba*, etc.

## DISCUSSION

The representatives of the genus *Agape* Felder are distributed in Australian and Oriental regions. The genus *Agape* plays sister group relationships with *Asota* Hubner by their synapomorphics like the maxillary palpi with 3<sup>rd</sup> segment longer than 2<sup>nd</sup> and apophysis posteriors in female much longer than apophysis anteriors. The genus *Agape* comprises only three species, among these only *A. ficus* F. is so far recorded from Pakistan. It is isolated from others by its autapomorphics like 3<sup>rd</sup> segment of maxillary palpi narrowed and much longer, the ductus bursae very long and tubular and the corpus bursa oblongate with cornuti.

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