

Phylogeny of fulgoromorpha nymphs, first results

Chung-Tu Yang and Shang-Jen Fang

Department of Entomology, National Chung Hsing University Taichung, Taiwan, 400, Republic of China

The phylogenetic relationships of the Fulgoromorpha mainly based on adults, have been published by Muir ^{1,2}, Asche ³ and Emeljanov ⁴. The relationships of subgroups of the Fulgoromorpha are still unclear.

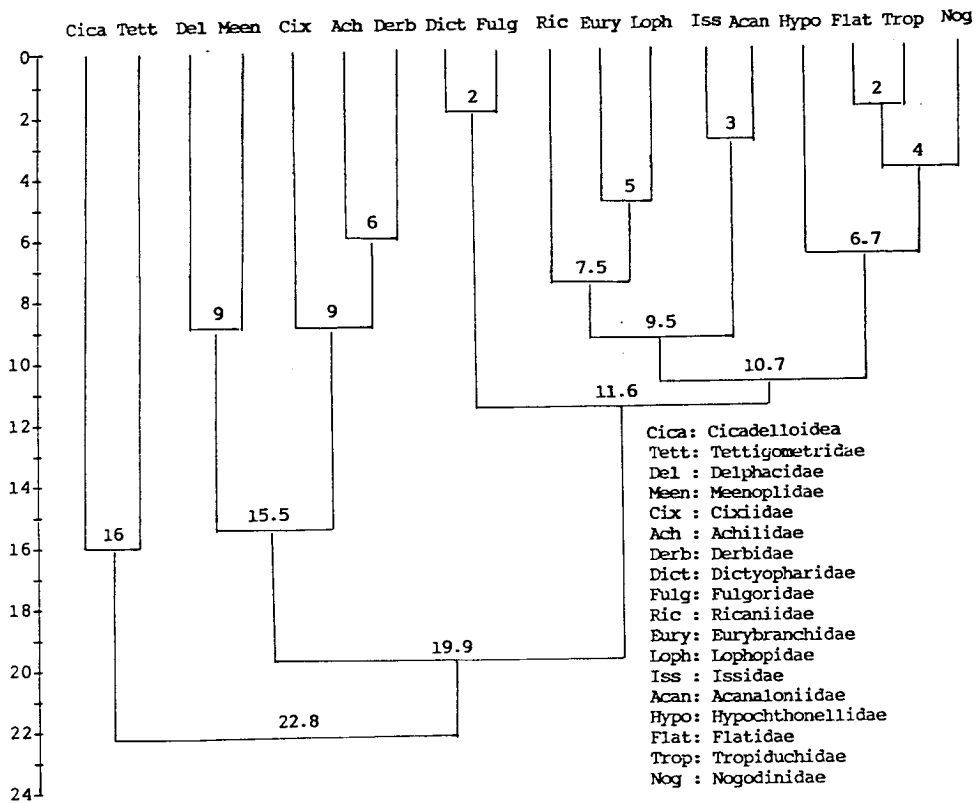


Fig.1 Phenogram of Fulgoromorpha nymphs.

The authors present the first results of preliminary phenetic analysis, using Manhattan coefficient as a distance measure (Fig.1), of subgroups based on nymphal characters only. The nymphal characters of Cicadelloidea are included here for comparison. The fifth instar nymphs of

17 families (Kannaridae, Achilixiidae and Genidae were not available), comprising 240 species were used. These taxa were analyzed on the basis of 85 characters.

Cicadelloidea and Tettigometridae are grouped together (coefficient of separation is equal to 16) on the basis of the 10-segmented abdomen and the general structure of face, but most of the other characters of Tettigometridae are shared with the Fulgoromorpha.

Delphacidae, Meenoplidae, Cixiidae, Achilidae and Derbidae are clustered together as a distinct group. Delphacidae and Meenoplidae are clustered at a rather large average distance value of 9, having mesonota each with 4 or more sensory pits. Cixiidae, Achilidae and Derbidae form a monophylum in which most of the nymphs live on wet rotten wood; the anal comb is comb-like and the meta-claw unisetose.

Dictyopharidae and Fulgoridae are grouped together by the second meta-tarsal segment with 7-10 apical teeth; the anal combs arising ventrad, directed dorsad.

Ricaniidae, Eurybranchidae, Lophopidae, Issidae and Acanaloniidae are clustered by the abdominal segment VI having on each side 5 rather large wax-pore parts at the laterocaudal membranous area.

Hypochthonellidae, Flatidae, Tropiduchidae and Nogodinidae are clustered on the basis of the abdominal segment VI having each side 5 slendered, mostly rounded wax-pore parts.

References

1. MUIR, F., 1923, *Proc. Hawaiian Ent. Soc.*, 5(2):205-247.
2. MUIR, F., 1930, *Ann. Mag. Nat. Hist.*, 10(6):461-478.
3. ASCHE, M., 1987, In *Proc. 6th Auchen. Meeting*, Turin, Italy, 7-11 Sept. pp.47-53.
4. EMELJANOV, A.F., 1990, *Rev. Ent. URSS LXIX*, 2, 353-356.
5. YANG, C.T. AND W.B. YEH, *Nymphs of Fulgoroidea (Homoptera: Auchenorrhyncha)*, (in prep.).