

Classification of the microleafhopper genus *Empoa* Fitch from Korea (Homoptera: Cicadellidae: Typhlocybinae)

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Abstract

Hitherto, 7 species belonging to the leafhopper genus *Empoa* Fitch, 1851 have been known to Korean fauna, since Hossain's Ph.D. thesis (2018): *E. (Parempoa) albifascia* Anufriev, 1979, *E. (Empoides) aglaie* (Anufriev, 1968), *E. (Empoides) anufrievi* Dworakowska, 1970, *E. (Empoides) fumapicata* Dlabola, 1967, *E. (Empoides) parva* Choe, 1986, *E. (Empoides) punicea* (Matsumura, 1932) and *E. (Empoides) thalia* (Anufriev, 1968). Among them, *E. (Parempoa) albifascia* Anufriev and *E. (Empoides) fumapicata* Dlabola, were reported as newly recorded species during the annual meetings of ESK in 2016 and 2018, respectively. For the continuous taxonomic survey on the typhlocybinae microleafhoppers from Korea, the authors have found a further species new to science: *E. (Empoides) innaesana* sp. nov. Thus, a total of 8 species of the present genus are recognized to be occurred in Korean fauna. A key to discriminate the subgenera and species from Korea are provided here.

Key words: Auchenorrhyncha, Typhlocybini, morphology, identification, new species.

Introduction

The leafhopper genus *Empoa* Fitch, 1851 represents a zoogeographical trends adaptively to be distributed widely in Holarctic region. This genus is allied to *Edwardsiana* Zachvatkin, but can be characterized in having two apical cells at hindwing; male pygofer lacking microsetae at base; aedeagus with 1-3 pairs of terminal processes at apex.

Hitherto, 7 species belonging to the present genus have been known to Korean fauna, since Hossain's Ph.D. thesis (2018): *E. (Parempoa) albifascia* Anufriev, 1979, *E. (Empoides) aglaie* (Anufriev, 1968), *E. (Empoides) anufrievi* Dworakowska, 1970, *E. (Empoides) fumapicata* Dlabola, 1967, *E. (Empoides) parva* Choe, 1986, *E. (Empoides) punicea* (Matsumura, 1932) and *E. (Empoides) thalia* (Anufriev, 1968). Among them, *E. (Parempoa) albifascia* Anufriev and *E. (Empoides) fumapicata* Dlabola, were reported as newly recorded species during the annual meetings of ESK in 2016 and 2018, respectively.

For the continuous taxonomic survey on the typhlocybinae microleafhoppers from Korea, the authors have found a further species new to science: *E. (Empoides) innaesana* sp. nov.

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Systematics

Genus *Empoa* Fitch, 1851

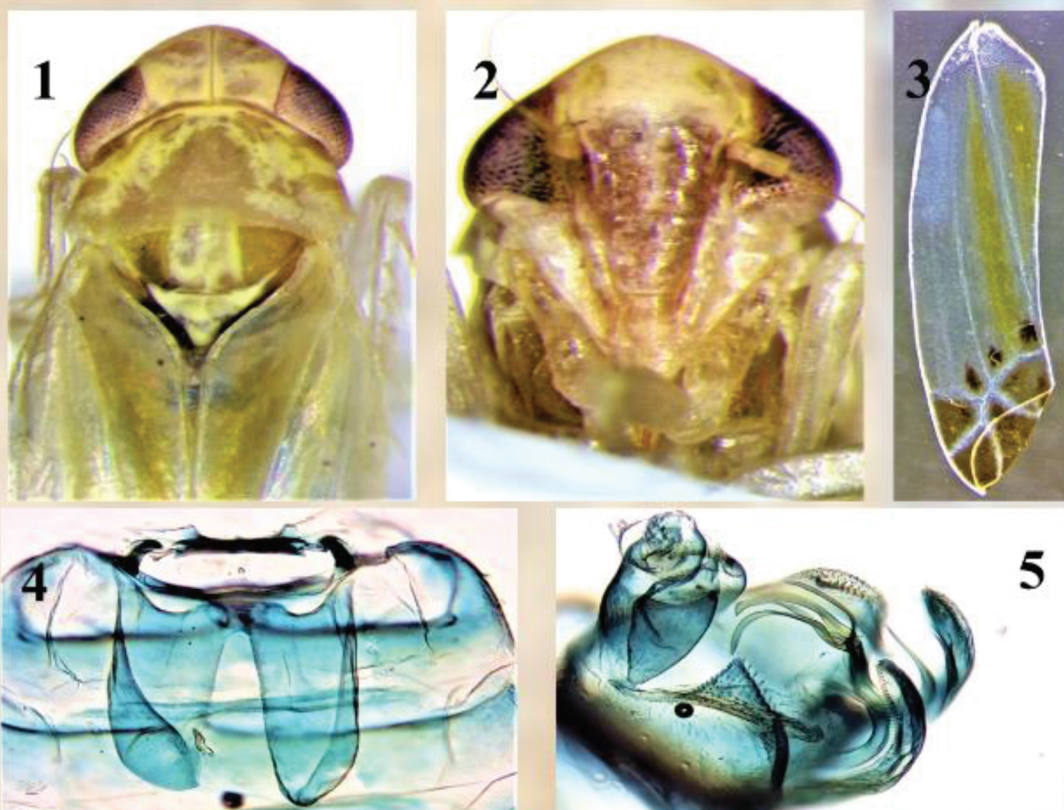
Empoa Fitch, 1851, Ann. Rept. State Cab. Nat. Hist. 4: 63.

Type species: *Empoaquerci* Fitch, 1851.

Type locality: USA.

Key to subgenera of the genus *Empoa* from Korea

1. Forewings with stalked 2nd apical cell; aedeagus with 2 pairs of apical processes; dorsal margin of shaft without ridge - - - - - *Empoides*
- Forewings with simple 2nd apical cell; aedeagus with a pair of apical processes and short ridge at base of dorsal margin - - - - - *Parempoa*



Figures 1-5. *Empoa (Empoides) innaesana* sp. nov.: 1: head and thorax in dorsal view, 2: face in ventral view, 3: forewing, 4: male abdominal apodeme, 5: male genitalia in caudo-lateral view.

Subgenus *Empoa (Empoides)* Vilbaste, 1968

Empoa (Empoides) Vilbaste, 1968, Ü. Zik. Prim. Geb.: 93.

Type species: *Empoides rubellus* Vilbaste, 1968.

Type locality: Russia (Maritime Territory).

Key to species of the subgenus *Empoides* from Korea

1. Male aedeagus recurved posteriorly before base in lateral view, with a median process *E. innaesana* sp. nov.
- Male aedeagus not recurved posteriorly before base in lateral view, lacking a median process . . . 2.
2. Aedeagus with 1 pair of apical processes incurved forcep-like *E. parva*
- Aedeagus with 2 pairs of apical processes; dorsal margin of shaft without ridge 3.
3. Body coloring ruby red; aedeagus with ventral processes slanting dorsad, passing between bases of dorsal processes; dorsal processes lamellate beyond base *E. punicea*
- Body coloring yellow; with longitudinal reddish or brown stripe from vertex or pronotum to apical cells of forewings; aedeagus with processes not as above 4.
4. Pygofer lobes with a pair of sclerotized projections on dorsal margin *E. anufrievi*
- Pygofer lobes with single sclerotized projection at dorsal margin 5.
5. Aedeagal shaft smooth; processes slanting dorsad, forming an angle with shaft axis; dorsal pair processes flattened, basal half widened, crossed in middle *E. aglaie*
- Aedeagal shaft with spines; processes smoothly arcuate, following shaft axis; dorsal pair processes crossed, narrow; ventral pair processes diverging *E. thalia*

Check list of the subgenus *Empoides* from Korea

1. *Empoa (Empoides) aglaie* (Anufriev, 1968)
Distribution: Korea (North), China (Shaanxi), Mongolia, Russia (Maritime Territory).
2. *Empoa (Empoides) anufrievi* Dworakowska, 1970
Distribution: Korea (North, South), Russia (Maritime Territory).
3. *Empoa (Empoides) fumapicata* Dlabola, 1967
Distribution: Korea (Central), China (Shaanxi), Mongolia, Russia (Maritime Territory, Kuriles).
4. *Empoa (Empoides) innaesana* sp. nov.
Distribution: Korea (new record: South).
5. *Empoa (Empoides) parva* Choe, 1986 nom. nud.
Distribution: Korea (Central).
6. *Empoa (Empoides) punicea* (Matsumura, 1932)
Distribution: Korea (Central, North), Japan (Hokkaido, Honshu), Russia (Maritime Territory).
7. *Empoa (Empoides) thalia* (Anufriev, 1968)
Distribution: Korea (Central, South), Russia (Maritime Territory, E. Siberia).

Subgenus *Parempoa* Anufriev & Emeljanov, 1988

Empoa (Parempoa) Anufriev & Emeljanov, 1988, Keys Ins. Far East USSR 2: 154.

Type species: *Empoa albifascia* Anufriev, 1979.

Type locality: Russia (Maritime Territory).

Check list of the subgenus *Empoides* from Korea

8. *Empoa (Parempoa) albifascia* Anufriev, 1979
Distribution: Korea (Central), Russia (Maritime Territory).

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