

**P112***Molecular phylogeny and character evolution of Crematogaster inflata-group***Shingo Hosoishi, Munetoshi Maruyama, Kazuo Ogata**

A recent molecular phylogeny of the genus *Crematogaster* reclassified some members of the former subgenera *Paracrema* and *Physocrema* into the *C. inflata*-group, comprising five species: *C. subcircularis*, *C. inflata*, *C. onusta*, *C. ampullaris* and *C. modiglianii*. Molecular analysis of the *Crematogaster inflata*-group and seven other species of former subgenus *Physocrema* (*C. aurita*, *C. difformis*, *C. mucronata*, *C. physothorax*, *C. sewardi*, *C. tanakai*, *C. vacca*) were investigated using a total of 1425 bp of sequence data from four nuclear protein-coding genes (long wave length rhodopsin, arginine kinase, carbamoylphosphate synthase, wingless). Monophyly of the *C. inflata*-group was strongly supported, but rejected for the former subgenus *Physocrema*. These findings suggest that a swollen propodeum and a circular-shaped metapleural gland opening are not synapomorphic characters for all members of the former subgenus *Physocrema*. Two morphologically distinct subgroups, the *C. difformis*-subgroup (*C. ampullaris*, *C. difformis*, *C. sewardi*, *C. tanakai*) and the *C. inflata*-subgroup (*C. aurita*, *C. inflata*, *C. onusta*, *C. physothorax*) were also supported by the molecular phylogeny. The *Crematogaster difformis*-subgroup is distinguished by a moderately swollen propodeum, and the *C. inflata*-subgroup by a strongly swollen propodeum. Phylogenetic analysis thus supports the loss of propodeal spines in these two independent lineages, and also indicated the reduction in the number of antennal club from four to three segments in *C. mucronata*. In addition, cytochrome oxidase I (COI) sequence data (711 bp) supports the species status of *Crematogaster tanakai*, which is unique in having a swollen yellow-colored head and was first discovered inhabiting the same nest with *C. difformis* (5.5 % COI divergence between the two species).