ABSTRACT

NURHAIDAH IRIANY SINAGA. Systematics of Freycinetia Gaudh. in West New Guinea (supervised by Rita Megia, Alex Hartana, Mien A. Rifai and Ary Prihardhyanto Keim).

Freycinetia Gaudh. in West New Guinea had been investigated. For about 4.000 specimen collections were studied using morphological, ecological and molecular data of cp DNA sequence trnL-F, atpB-rbcL and trn-L. The result showed that in West New Guinea 92 species occur. All species can be divided into 4 groups namely F. macrostachya, F. funicularis, F. oblanceolata and F. angustissima groups. The F. macrostachya group have 36 species and 12 species are prepare as a new species namely F. aurihasteta Sinaga, F. brevipedicelata Sinaga, F. clavata Sinaga & Utteridge, F. circuita Sinaga, F.concordia Sinaga, F. frutaspirralica Sinaga, F. frutonumerata Sinaga, F. mandacana Sinaga, F.megaauriculata Sinaga & Utteridge, F. stigmabieta Sinaga, F. ulteropedicelata Sinaga and F. yapenina Sinaga. The F. funicularis group have 17 species and 9 species are prepare as a new species namely F. ayawasa Sinaga, F. fusiforma Sinaga & A.P. Keim, F. hasteta Sinaga, F. imbristigma Sinaga & A.P. Keim, F. magnoareola Sinaga, F.millkenus Sinaga & A.P. Keim, F. nervoauricula Sinaga, F. spiroaxilla Sinaga & A.P. Keim and F. simpliaxillata. The F. oblanceolata group have 31 species and 9 species are considered as a new species namely F. albaauria Sinaga, F. batantaensis Sinaga, F. decendata Sinaga, F. folitenella Sinaga, F. frutasolla Sinaga, F. broccoareola Sinaga, F. iriana Sinaga, F. manokwariana Sinaga and F. verstegii Sinaga. The last group is F. angustissima group that have 8 species but only one as a new species namely F. pauciberria Sinaga. The F. macrostachya and F. oblanceolata groups living from forest beach to 1700 m asl but F. macrostachya group are found alone in secondary forest. The F. funicularis and F. angustissima groups prefer living on the mountain area and both of them are found on 3000 m asl. 35 species has limited distribution it is only found in Papua but 52 species occurs both in Papua &PNG and 5 species are widely distribution throughout Malesia and Australia. Analysis phylogenetic through PAUP program using both morphological and molecular data support the groups with CI (Coefficient Index) = 0.7, HI (Homoflashy Index) = 0.3 for morphology characters and CI =0.930; 0.868; 0.890 and HI = 0.07; 0.132; 0.110 for molecular data by trnL-F; atpB-rbcL and trn-L sequencing of CP DNA. According to morphological data F. macrostachya group is a primitive one, It is followed by F. funicularis group, F. oblanceolata and F. angustissima groups as an advance one. But in the trnL-F sequencing cpDNA data F. macrostachya group as a primitive one separate from 3 other derivate groups and this result are supported by ecological situation. On the other hands, atpB-rbcL sequencing strongly support the groups but advance one is not belong to the F. angustissima group anymore but F. funicularis group. The same way is found in the trn-L sequencing data. Therefore trnL-F sequencing had given more conservative characters but atpB-rbcL showed both conservative and advance characters while trn-L had given more advance characters.

Key words: Freycinietia, West New Guinea, systematics, morphological, ecological and molecular data.