

Micromorphological, Chemical and Molecular Study On The Family Papaveraceae In Iraq

Thesis

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ABSTRACTS

Twenty six species of Papaveraceae was studied, under light and scanning electron microscopes Pollen morphology of twenty seven species of Papaveraceae were studied under light and scanning electron microscopes. Seven pollen types are described of which *Eschscholzia californica*, *Roemeria hybrida* and *Corydalis rupestris* types are newly described here. The seed micromorphological characters of the genera and species studied have shown significant taxonomical value on specific levels and a key for species identification based on seed morphology only is presented. Types and concentration of five opium alkaloids in 16 species of Papaveraceae were determined and their taxonomic value discussed. These alkaloids were morphine, codeine, theanine, papaverine and noscapine, while papaverine was the only alkaloids found in all section of the genu *Papaver*. Thirty six samples of Papaveraceae (S.L.) were extracted for DNA analysis. Three primers based on ITS of nrDNA ITS3,5 ITS4,5 and *matk* chloroplast gene were used in PCR amplification. Phylogenetic relationships among genera and species of Papaveraceae (S.L.) based on Neighbor-joining (NJ), UPGMA and ML-DTR-GL 1000 models were drowning. The clades of phylogenetic relationship clearly support relationships of Fumariaceae to the Fumarioideae in the family Papaveraceae (S.L.). Geographical distribution of all

Papaveraceae was mapped. Several species were newly recorded to different districts.