

HISTOCHEMICAL ASPECTS AND *IN-VITRO* GERMINATION OF POLLEN OF *RHIZOPHORA* SPECIES

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In-vitro germination of pollen has been used as a powerful tool for genetical, physiological, biochemical and cytochemical studies and it is a prerequisite for crop improvement and plant breeding programmes. The present study was conducted to investigate some histochemical aspects and *in-vitro* germination of pollen of two common mangrove species ie. *Rhizophora mucronata* Poir. and *Rhizophora apiculata* Blume. Pollen morphology was studied by observing randomly selected 25-50 pollen grains of each species under Triocular Labomed research microscope ($\times 400$). Iodine test and Sudan III test were performed to determine the presence of carbohydrate and lipid in pollen. Randomly selected 50 pollens of each species were observed for colour changes after the test. For *in-vitro* pollen germination, pollen grains were grown in two media containing different concentrations of sucrose (0 %, 10 %, 15 %, and 20 %), a liquid medium containing 0.001 % boric acid and semi-solid medium containing 0.5 % agar and 0.005 % boric acid. Numbers of germinated and non germinated pollen grains were counted under mid power of the microscope with 5 replicates for each sucrose concentration. Statistical analysis was done by One Way ANOVA using Minitab R.14.

Pollen grains of both species were light green, spherical, smooth walled, and tricolporate. Very low intense blue colour developed with Iodine test revealed that starch contents in pollen grains of both species were low. However, Sudan III test indicated abundance of lipids in pollen grains of both species. The percentage germination of pollen grains was significantly increased with the increase of sucrose in the semi-solid and liquid medium especially from 15 % to 20 % in *R. mucronata* ($p < 0.05$). In *R. apiculata* the highest percentage germination of pollen grains were observed in liquid and semi-solid media containing 15 % and 20 % sucrose concentrations. None of the pollens of two species germinated in control (0 % sucrose) and 10 % sucrose solution in semi solid media. Bursting of pollens was observed in 10 % sucrose concentration in both media tested in two species. However, no pollen bursts were observed at both media containing 15 % and 20 % sucrose concentrations for the two *Rhizophora* species studied. Twenty percent sucrose concentration was most effective for germination of pollen and pollen tube growth of both *Rhizophora* species. The information collected in this study revealed that the optimum sucrose concentration and reserved nutrients in pollen are important factors influencing the germination of pollens of both *Rhizophora* species.