

A Review

Effect of herbicide (mh) on pollen germination and tube growth of twelve hours stored pollen of apocynaceae: further evidence of a criticism of Banerji and Gangulee (1937), Brewbaker and Kwack (1963), Sudhakaran (1967-Ph.D. Thesis), Dharurkar (1971 - Ph.D. Thesis), Berg (1973), Brandt (1974), Vick and Bevan (1976), Rasmussan (1977), Navara, Horvath and Kaleta (1978), Mhatre (1980 - Ph.D. Thesis), Mhatre, Chaphekar, Ramani Rao, Patil, Haldar (1980), Shetye (1982 - Ph.D. Thesis) and Giridhar (1984 - Ph.D. Thesis)

S. A. SALGARE

Salgare Research Foundation Pvt. Ltd., Prathamesh Society, Shivaji Chowk, KARJAT (M.S.) INDIA

(Accepted :September, 2006)

SUMMARY

All the concentrations (10^{-17} - 10^{-2} - 10^{-3} , 1, 5, 10, 20-20-100 mg/ml) of MH tried suppressed the germination of pollen of F-24, F-48 and F-72 series of pink-flowered cultivar of *Catharanthus roseus*. HM stimulated the germination of pollen and tube growth in either sets in all the 5 cultivars of the Apocynaceae. Stored pollen shows the decrease in the germinability of pollen as well as tube growth in control and treated sets in all the 5 cultivars of the Apocynaceae.

Key words : Palynology, Toxicology, Environmental Sciences.

The use of vegetation as biological indicator of environmental quality has a long history dating back to the miners canary, to the recognition about 100 years ago. Recent studies have shown the feasibility of using natural vegetation for monitoring pollution (Berg, 1973; Brandt, 1974; Rasmussan, 1977; Navara, Horvath and Kaleta, 1978).

MATERIALS AND METHODS

Pollen of successive flowers (*viz.* F, F-24, F-48, F-72 series *i.e.* open flowers and the flower buds which require 24, 48, 72 hours to open respectively.) of 5 cultivars of the Apocynaceae *e.g.* red-, pink- and white-flowered cultivars of *Nerium odorum* Soland. and pink- and white-flowered cultivars of *Catharanthus roseus* (L.) G. Don. were collected at the stage of the dehiscence of anthers in the open flowers and stored at room temperature (21-31°C) having RH 59% and in diffuse laboratory light at the department of botany, Govt. Institute of Science, Mumbai. Pollen viability was tested by using 2,3,5-triphenyl tetrazolium chloride (Hauser and Morrison, 1964). Germination of stored pollen grains of successive flowers was made with 2 hours intervals for the first 12 hours in the optimum concentrations of

sucrose as well as in the optimum concentrations of sucrose supplemented with the optimum concentrations of Maleic Hydrazide (MH) (1,2-dihydropyridazine, 3-6-dione) (Table 1). However, the present investigation is restricted only with the pollen stored 12 hours at the room temperature (Table 1). Observations were recorded 24 hours after incubation. For each experiment a random count of 200 grains was made to determine the percentage of pollen viability and germination. For measurement of length of pollen tubes 50 tubes were selected randomly and measured at a magnification of 100x.

RESULTS AND DISCUSSION

Pollen viability is a subject that has a great deal of practical as well as theoretical interest. In the present investigation even the different cultivars of the same species show the variations in the percentage of their pollen viability (Table 1). Reduced pollen viability has been interpreted as an indication of suspected hybridity in wild populations. Nevertheless, variations in pollen viability may affect the breeding systems of the species concerned, and if the pollen viability can be altered by the environment, then the breeding system itself may be under some degree of environmental control.