

Review

Effect of fernoxone on the rate of pollen germination and tube growth of successive flowers of five cultivars of *Petunia axillaris* BSP.: Further evidence of a criticism of Saoji and Chitale (1972), Berg (1973), Brandt (1974), Rasmussen (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)

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SUMMARY

Atrataf 50W stimulated the rate of germination of pollen and tube growth in F series of violet-flowered and F-24 series of white-violet-flowered cultivars of *Petunia axillaris*. It produced maximum stimulation (100.00%) in the rate of pollen germination as well as the tube growth of F-24 series of white-violet-flowered cultivar. Atrataf 50W caused maximum inhibition in the rate of germination of pollen (28.52%) and tube growth (93.33%) of F series of white-violet-flowered cultivar of *Petunia axillaris*.

Key words : Physiology of Pollen, Palylnology, Toxicology, Environmental Sciences,

In spite of the very varied approach of study and the extensive work done, the large number of herbicides being developed in industry and used in agriculture stand only in testimony of the necessity of more work in the field.

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 (light-violet-, pink-, violet-, white- and white-violet-flowered) of *Petunia axillaris* BSP. were collected soon after the dehiscence of anthers in the open flowers. Germination of pollen grains was studied by standing-drop technique in the optimum concentrations of sucrose which acts as the control as well as in the optimum concentrations of sucrose supplemented with the optimum concentrations of fernoxone (Table 1). Pollen grains were incubated soon after the dehiscence of anthers. The cultures were then transferred to a moist filter chamber, stored at room temperature (25.6-31.8°C) having RH 59% and in diffuse laboratory light. The experiments were run in triplicate and average results were recorded. The rate of pollen germination and tube growth was determined by fixing the cultures at one hour intervals. Such preparations were continued for 10 hours. Observations

on the germination of pollen and tube growth were recorded 24 hours after incubation. For each experiment a random count of 200 grains was made to determine the percentage of pollen 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 was found highest (95%) in white-flowered cultivar and minimum (80%) in violet-flowered cultivar of *Petunia axillaris* (Table 1). This proves that the viability of pollen varies from cultivar to cultivar even of the same species. Potentiality of pollen germinability was noted in F and F-24 series of all the 5 cultivars and in F-48 series of white-flowered cultivar of *P. axillaris*. Thus the potentiality of pollen germinability in *P. axillaris* was recorded in 11 out of 20 series investigated (Table 1).

Pollen germination of F series of violet-flowered and all the cultivars investigated of F-24 and F-48 series of *Petunia axillaris* was suppressed even by the lowest concentration (10^{-17} mg/ml) of fernoxone (Salgare, 1986a-Ph.D.Thesis-Table 1). 10^{-17} mg/ml fernoxone also suppressed the germination of pollen of F-24 series of red-flowered cultivar of *Nerium odorum* and F-48 and F-72 series of pink-flowered cultivar of *Catharanthus*