

**A Review :****Effect of fernoxone on pollen germination and tube growth of twelve hours stored pollen of apocynaceae and further evidence of a criticism of the hypothesis of Sudhakaran (1967)****S. A. Salgare**

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**P**OLLEN 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 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, Institute of Science, Mumbai. 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 fernoxone (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 germination. For measurement of length of pollen tubes 50 tubes were selected randomly and measured at a magnification of 100x.

Potentiality of pollen germinability was recorded in F series of all the 5 cultivars of Apocynaceae studied. It was the pollen of F-24 series of red-flowered cultivar of *Nerium odorum* and both the cultivars of *Catharanthus roseus* found germinated in the optimum concentrations of sucrose. It should be pointed out that the pollen of F-48 and F-72 series of pink-flowered cultivar

of *C. roseus* showed their germination in the optimum concentrations of sucrose. Thus the potentiality of pollen germinability in Apocynaceae was observed in 10 out of 20 series investigated (Table 1). Decrease in the germinability of pollen as well as tube growth was noted with the stored pollen. It seems that the herbicide does not have any effect on the germinability of pollen as well as tube growth. Similar conclusions are also drawn as far as the rate of decrease in the germinability of pollen and tube growth of successive flowers of Apocynaceae are concerned (Table 1). Sudhakaran (1967) stated that in *Vinca rosea* L. [*Catharanthus roseus* (L.) G. Don.] besides pollen grains which produced single pollen tube, it has also been noticed that tetraploid grains frequently produce more than one pollen tube. Pollen tubes are branched quite frequently. Aberrations of this type in the pollen tube development are not observed in diploid pollen tubes, but quite frequently met with the pollen grains of irradiated plants. Salgare (2004) and Salgare and Bindu (2000, 2001a-c) made it very clear that Sudhakaran (1967) had failed to trace out the branched pollen tubes and polysiphonous condition which is fairly common even in diploid pollen grains. Apart from this Sudhakaran (1967) was not able to report the various types of pollen tube deformities either with diploid or tetraploid grains. Present findings as well as the previous work of Salgare (2004) and Salgare and Bindu (2000, 2001a-c)

**Table 1 :** Effect of fernoxone on pollen germination and tube growth of twelve Hours stored pollen of Apocynaceae.

Species	Series	SC	HC	%G	µm	%G	µm	%G	µm	%S	%I	%S	%I
N.odorum pink-flowered	F	50	10 <sup>-17</sup>	35	1485	40	370	03	045	Nil	69.20	Nil	42.61
N.odorum red-flowered	F	20	10 <sup>-17</sup>	20	1250	40	080	04	166	Nil	43.71	Nil	49.23
N.odorum white-flowered	F	50	10 <sup>-17</sup>	20	0675	35	483	03	065	006.8	Nil	04.09	Nil
C.roseus pink-flowered	F	20	10 <sup>-17</sup>	60	1575	85	237	35	315	Nil	09.55	00.22	Nil
C.roseus white-flowered	F	20	10 <sup>-17</sup>	40	1256	84	560	32	282	Nil	52.00	75.65	Nil
N.odorum red-flowered	F-24	20	Ng	06	0485	Ng	060	Ng	Ng	Ng	Ng	Ng	Ng
C.roseus pink-flowered	F-24	50	10 <sup>-17</sup>	28	0240	75	110	25	103	112.0	Nil	64.92	Nil
C.roseus white-flowered	F-24	50	10 <sup>-17</sup>	16	0248	78	120	08	144	Nil	Nil	18.75	Nil
C.roseus pink-flowered	F-48	50	Ng	14	0095	Ng	025	Ng	Ng	Ng	Ng	Ng	Ng
C.roseus pink-flowered	F-72	80	Ng	10	0065	Ng	015	Ng	Ng	Ng	Ng	Ng	Ng

C, in control; H, time in hours; HC, optimum concentrations of herbicide; Ng, no germination of pollen; PGTGSAPS, Pollen germination and tube growth in the sets, sets soon after pollen storage; PGTG12HAPS, Pollen germination and tube growth in the sets, sets 12 Hours after pollen storage; RDPGTG/H, Rate of decrease in pollen germinability and tube growth/hour; SC, optimum concentrations of sucrose; T, in treated sets; %G, % pollen germination; µm, pollen tube length in µm.

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also proved that Sudhakaran's (1967) observations are superficial and misleading.

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