

A Review:

Alteration of resting period of pollen of five cultivars of Apocynaceae by mineral (potassium borate): Further Evidence of a Criticism of Brewbaker and Kwack (1963), Sudhakaran (1967-Ph.D.Thesis) and Saoji and Chitale (1972)

S.A. SALGARE

Accepted : October, 2008

Correspondence to:

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

ABSTRACT

Boric acid altered the resting period of pollen of 5 series and failed in 5 series of the Apocynaceae.

Key words : Palynology, Minerals, Growth regulators.

Palynology, in recent years has attracted the attention of workers of different disciplines on account of its numerous applications to problems of plant taxonomy, genetics, geology, medical and agricultural sciences. Pollen physiology furnishes the information required for effecting hybridization of plants growing in different geographical and climatic regions with blooms in different seasons.

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 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. Germination of pollen grains of successive flowers was studied by standing-drop technique in the optimum concentrations of sucrose as well as in the optimum concentrations of sucrose supplemented with the optimum concentrations of boric acid (Table 1). The rate of pollen germination of successive flowers was determined by fixing the cultures at one hour intervals. Such preparations were continued for 10 hours. Observations on the germination of pollen were recorded 24 hours after incubation.

RESULTS AND DISCUSSION

Potentiality of pollen germinability was recorded in F series of all the 5 cultivars of the 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).

Table 1 : Effect of potassium borate on the rate of pollen germination of Successive flowers of five cultivars of Apocynaceae

Cultivars	Series	%PV	Conc.			trfpg
			SC	OCM	C	
<i>Nerium odorum</i>						
Pink-flowered	F	91±0.42	50	10	1	4
White-flowered	F	61±2.87	50	10	3	2
Red-flowered	F	61±3.17	20	05	1	6
Red-flowered	F-24	61±3.17	20	10	1	7
<i>Catharanthus roseus</i>						
White-flowered	F	89±0.97	20	01	1	1
White-flowered	F-24	89±0.97	50	10	2	2
Pink-flowered	F	93. ±0.98	20	10	1	1
Pink-flowered	F-24	93. ±0.98	50	01	1	5
Pink-flowered	F-48	93. ±0.98	50	Ng	8	Ng
Pink-flowered	F-72	93. ±0.98	80	Ng	Ng	Ng

C, in control sets time required for germination of pollen in optimum concentrations of sucrose; OCM, optimum concentrations of mineral in mg/ml; Conc, optimum concentrations of sucrose and boric acid; SC, optimum concentrations of sucrose in %; Ng, no germination of pollen even after 24 hours of sowing; PV, pollen viability; T, time required for germination of pollen in optimum concentrations of sucrose + boric acid (in treated sets); trfpg, time required for the germination of pollen in control sets and treated sets in hours.