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On *A. aspera* only following imperfect rusts—*Uredo achyranthes* P. Henn., *U. verrucunda* Syd. and *U. achyranthicola* Cumm. have been reported earlier¹⁻³, but till now no perfect plant rust has been recorded on this host. Present publication reports a new rust taxon belonging to the rust genus *Uromyces*, and has been named in honour of Prof. M. S. Pavgi, the renowned mycologist and the teacher of the first author.

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GAMMA RAY EFFECTS ON HETEROSTYLY IN *SOLANUM KHASIANUM* CLARKE

Solanum khasianum Cl. yields the alkaloid solasodine, a raw material for the synthesis of Corticosteroids in commercially exploitable amounts³. However, attempts to cultivate this species have not been encouraging mainly due to the low berry yield¹. Murthy and Abraham⁴ reported the occurrence of heterostyly in this species. Though they found 90.0% fruit set in long styled flowers, the short styled flowers did not set any fruits. Thus heterostyly may be responsible for poor berry yield of this species. In the present communication the effects of gamma rays on the incidence of heterostyly are described.

Seeds of *S. khasianum* (moisture content 14.5%) were irradiated with 2.5, 5.0, 10.0, 15.0 and 20.0 kR using ⁶⁰Co source (4.1 kR/min). The irradiated seeds were flown back to Shillong and sown in pots filled with 1:1 mixture of soil and farmyard manure. When seedlings were about 75 days old, they were transplanted in the experimental beds (Botanical Garden of the N.E. Hill University). When the plants started flowering, 350-400 flowers were analysed for the incidence of long and short styled flowers in control and in irradiated plants. The average number of berries produced per plant was also recorded for control and irradiated plants.

The per cent occurrence of long and short styles and berry production in both unirradiated and irradiated *S. khasianum* are shown in Fig. 1. The per cent incidence of long and short styled flowers was 43.3 and 56.7 respectively in the control, but the percentage of long styled flowers increased in the irradiated plants. The increased incidence of long styled flowers was

also reflected in the enhanced berry production (Fig. 1). Although all the exposures increased the occurrence of long styled flowers and enhanced berry production, the rising trend of the curve was evident up to 5.0 kR only, subsequent to which it showed a decline. Thus, while the per cent incidence of long styled flowers is increasingly stimulated by lower exposures of gamma rays up to a threshold exposure dose, the higher exposures inhibit. Gamma ray exposures have an inverse effect on short styles. Stimulation of growth and development by low exposures of gamma rays and inhibition by higher exposures is reported in literature².

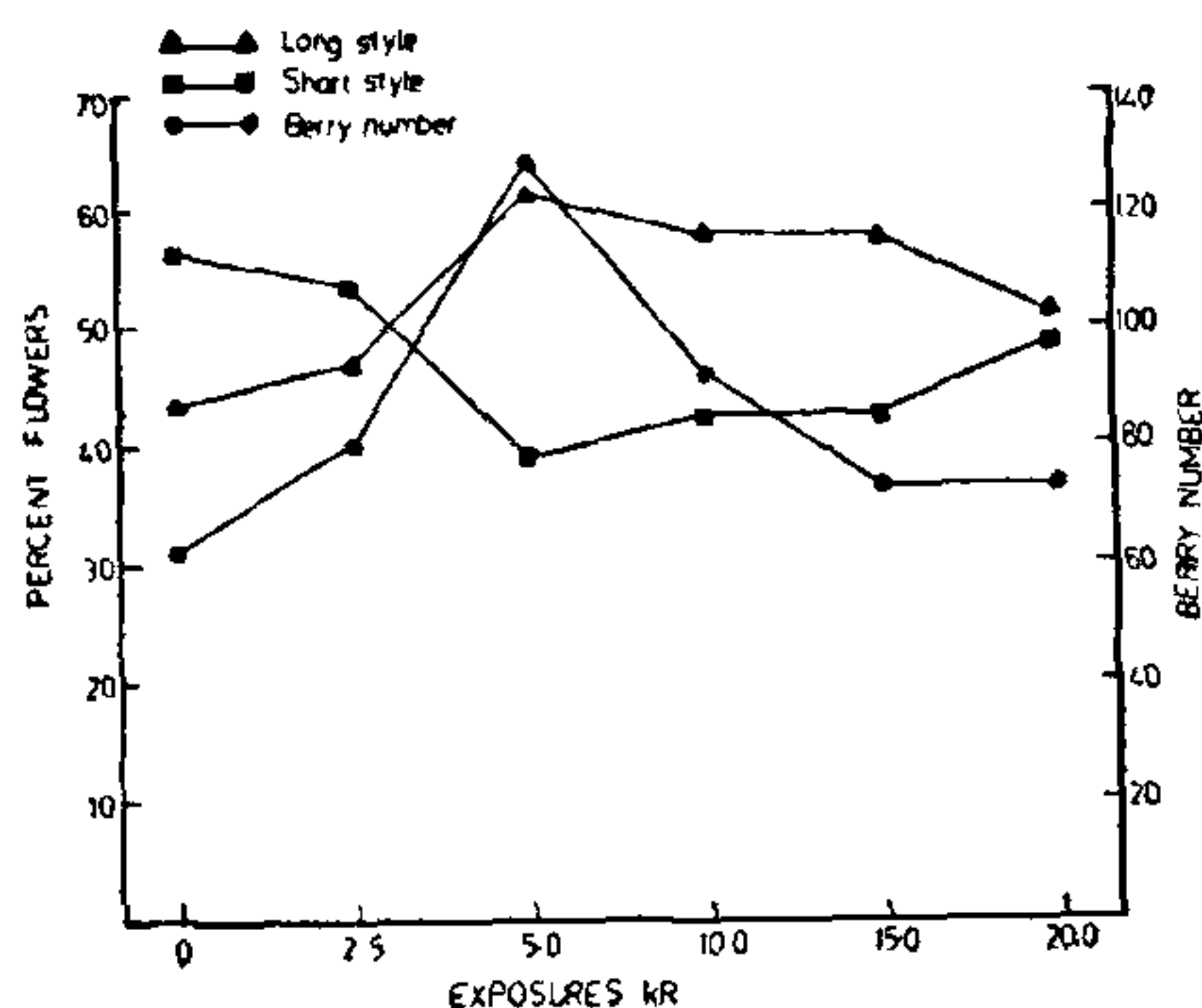


FIG. 1. Effect of γ -ray exposures on the incidence of long and short styles in *S. khasianum* and their relationship with berry formation.

The present study brings out the fact that with appropriate gamma ray exposures, the incidence of long styled flowers can be altered suitably for getting a better berry yield.

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