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Title: Polymorphism in pollen mother cells of *Valeriana wallichii* DC. (Valerianaceae)

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Abstract

While studying meiosis in the male tract of *Valeriana wallichii* DC (Valerianaceae). polymorphism in size as well as chromosome number was observed in its pollen mother cells. The present report is based on study undertaken in ten populations of the species; 8 from J&K (India) and 2 from Uttrakhand (India). In all the anthers studied from plants of these populations, pollen mother cells could be differentiated as small (20–30 μm), medium (30–50 μm) and large sized (50–65 μm). In two populations (Noorichamb, J&K and Chakrata, UK), besides size, PMCs with different ploidy level were also observed. While the small and medium PMCs had normal chromosome number with 16 bivalents, some of the large PMCs were tetraploid having 64 chromosomes. Rarely, some pmcs at early prophase- I were also seen in a seemingly fusing state in some of the anthers. Size difference in PMCs also got reflected in the size of pollen grains and these could be classified as small (<30 μm), medium (30–50 μm) and large (50–60 μm) in diameter. Pollen of different sizes differed for their stainability and viability. While stainability of small pollen was 74%, it was 95.5% and 100% in medium and large sized pollen grains respectively. Pollen viability (in FDA + 50% sucrose) was 55.8%, 84% and 100% for small, medium and large pollen grains respectively.

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