

## CHROMOSOME MORPHOLOGY AND BEHAVIOUR IN *ALOE VERA* L. PLANTS GROWING AT JAMMU, J&K STATE, INDIA

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**Abstract:** *Aloe vera* L., a medicinal plant belonging to family Asphodelaceae, has a long ethnobotanical and medical history. Though a prolific flower producer, seed formation occurs rarely in this species. Propagation occurs mainly through suckers. In order to probe the reasons behind the seedlessness, we investigated the meiotic system of the plants growing as escapes in our area i.e. Jammu, J&K state, India. Cytological characteristics of both sporophytic as well as gametophytic cells of these plants were investigated by studying pollen mitosis, nucellar cell mitosis and pollen mother cell meiosis. The species showed bimodal karyotype with karyotype formula as  $6sm+8st$  in nucellar cells and  $3sm+4st$  in pollen grains. No significant difference was noted between chromosomes characteristics of haploid and diploid cells. The chromosome number of *Aloe vera* was  $2n=14$  (in nucellar cells) and  $n=7$  (in pollen). While chromosome pairing was normal at metaphase I where 7II were observed, a large number of meiotic abnormalities was observed (69%) in the form of laggards, bridges and chromosome stickiness etc. during later stages. This reduced the pollen viability. Interestingly reduction in pollen viability had a correlation with environment factors in particular temperature. It showed a range from 2.45% to 79.47%. All the viable pollen were however cytologically stable with an expected haploid chromosome number as  $n=7$  and karyotype formula as  $3sm+4st$ .

**Keywords:** Karyotype, Gametophytic cell, Sporophytic cell, Bimodal, Meiotic system

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