

A Critical Review on Temperature Affecting the Morpho-Physiological, Hormonal and Genetic Control of Branching in Chrysanthemum

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Abstract : The assorted architectural plasticity of a plant is majorly specified by stooling, a phenomenon tackled by a combination of developmental, environmental and hormonal accelerators of lateral buds. Chrysanthemums (*Chrysanthemum morifolium*) are one of the most economically important ornamental plants worldwide on the account of having plentiful architectural patterns, diverse shapes and attractive colors. Side branching is the major determinant guaranteeing the consistent demand of cut chrysanthemum in flower industry. Presence of immense number of axillary branches devalues the economic importance of this imperative plant and is a major challenge for mum growers to hold a stake in the cut flower market. Restricting branches to a minimum level, or no branches at all, is the dire need of the day in order to introducing novelty in cut chrysanthemums. Temperature is a potent factor which affects largely the escalation, development of chrysanthemum, and also the genetic expression of various vegetative traits like branching. It affects differently the developmental characteristics and phenotypic expressions of inherent qualities, thereby playing a significant role in differentiating the developmental responses in different cultivars of chrysanthemum. A detailed study pertaining to the affect of temperature on branching in chrysanthemum is a clear lacking throughout the literature on mums. Therefore, searching with temperature as an effective means of reducing side branching to a desired level could be an influencing extension of struggles about how to nullify stooling. This requires plenty of research in order to reveal the extended penetration of temperature in manipulating the genetic control of various important traits like branching, which is a burning issue now a days in producing cut flowers in chrysanthemum. The present review will highlight the impact of temperature on branching control mechanism in chrysanthemum at morpho-physiological, hormonal and molecular levels.

Keywords : branching, chrysanthemum, genetic control, hormonal, morpho-physiological, temperature

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