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**Abstract:** Mango (*Mangifera indica* L.) is an important fruit crop of the tropical and subtropical regions of the world. It is major tropical fruit crop after citrus and banana. This crop is devastatingly afflicted by a disorder/disease known as mango malformation, the etiology of which is still unknown. This disease is virtually absent in the southern and western regions of the country. Due to its prevalence and destructive nature in Northern India, its study is being emphasized in northern part of the country. A survey was conducted and weather parameters were taken in five states of India namely Bihar, Jharkhand, Uttar Pradesh, Uttarakhand and Delhi. For these location climatic data pertaining to maximum and minimum temperature, RH and Wind speed were collected for a year i.e. 2016, in the months of February and March (Initiation of flowering period to flowering period). Severity of mango malformation in five varieties of mango namely Amrapali, Dushehri, Bombay Green, Langra and Chausa were calculated on the basis of average monthly values of minimum and maximum temperature, RH and wind speed. Favourable conditions were identified for incidence of mango malformation. The low temperature (maximum and minimum), moderate relative humidity and feeble wind favoured the occurrence of malformation in the buds and flowers. Several reactive oxygen species (ROS) are continuously produced in plants as by product of aerobic metabolism. Some are highly toxic and detoxified by various cellular enzymatic and non enzymatic mechanisms. ROS also function as signaling molecules in plants involved in regulating development and pathogen defense responses. Also oxidation of unsaturated fatty acids such as linolenic acids present in Plasma membrane leads to many different products, viz., alcohol, aldehydes and alkenes. Under stress condition Malondialdehyde is produced. Production of MDA serves as an index of lipid peroxidation. Peroxidation damage of the plasma membrane leads to leakage of cell contents, rapid desiccation and cell death. Intracellular membrane damage can affect respiratory activity in mitochondria cause pigment breakdown and loss of carbon fixing ability in chloroplast. In addition to this, plants have also developed a range of defense mechanism against various biotic and abiotic threats. They react to these stress factors by inducing physiological and biochemical changes in which accumulation of defense related compounds is one of them. The present study is therefore initiated to identify a correlation between accumulation of defense related compounds, antioxidant enzymes, other biochemical compounds and the extent of malformation incidence in mango varieties in five states of north India.

**Subject:** Plant Physiology

**Theme:** Plant Pathology

**Research Problem:** Mangoes

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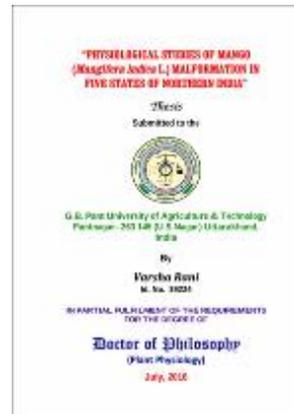
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