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RESEARCH PAPER

Effect of plant based organic treatments on the storage quality and management of diseases and disorders of oranges

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SUMMARY :

A study was conducted during 2010-11 on the pre and –post harvest treatment of neem (*Azadirachta indica* L.) based formulations of plant leaf extract on the storage quality,and management of diseases and post harvest disorders of oranges. The pre-harvest (20-25 days before harvest) treatments consisted of nimbecidine (0.5, 1.0, 1.5%), neem azal (1.0, 1.5, 2.0%) neem gold (0.5, 1.0, 1.5%) with bavistin (0.05%) as control (Table 3). Plant leaves/flower used as coatings were neem (*Azadirachta indica* L.) leaf extracts (10, 20%), drake (*Melia azedarach*) leaf extracts (10, 20%), spearmint (*Mentha spicata*) leaf extract (10, 20%), marigold (*Tagetus erectus*) flower extract (10, 20%) and semperfresh (control 1.5%). Freshly harvested fruits were treated with above treatments and were kept under refrigerated storage ($1\pm1^{o}C$) for analysis at a month interval up to 180 days. Among neem based formulations, nimbecidine (1.5%) was found better in reducing physiological loss weight, retaining fruit firmness, whereas, neem azal (2.0%) were found effective in retaining maximum total soluble solids (TSS) content, starch iodine rating and pectin content at the end of 180 days storage period. Fruits treated with 20 % drake leaf extract proved to be most effective treatment in reducing weight loss, whereas, maximum retention of firmness was recorded in fruits treated with 20 % neem leaf extracts. Drake and neem leaf extracts were also capable to retain maximum total soluble solid (TSS) content. Minimum decrease in starch content was recorded with 20 % neem leaf extract, this treatment also retained maximum pectin content in the fruits at the end of 180 days storage. On the other hand 20 % spearmint leaf extract (T_6) proved to be highly effective in reducing spoilage as no spoilage was recorded under this treatment. Therefore, uses of botanicals significantly helped not only in enhancing storage quality but it also reduces storage diseases and disorders to a greater extent. All the rotting causing pathogens namely *Aspergillus, Penicillium* activities were totally suppressed. Among various studies and experiments it was observed that botanicals can be effectively substituted against chemicals for eliminating the resistance pattern of several pathogens and thereby marinating storage quality and plant health at pre and post harvest level.

KEY WORDS : Botanical formulation**,** Botanical extract, Physico-chemical characteristics, Storage, Orange, Post harvest diseases and disorders

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