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Studies on fruit development stages and adjudging maturity indices of European plum cv. Hauszwetschge (clone: wolff) for extended postharvest life

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Proper picking maturity plays a vital role in determining the storage life of plum fruit. The present study was undertaken with an aim to adjudge optimum harvesting stage of European plum for maximum quality retention and extended shelf life. Harvesting of fruits was initiated at colour breaker stage and concluded at self dropping stage. Harvesting was done at weekly interval and seven harvesting stages were characterized viz. harvesting stage -I (HS-I i.e. colour break stage), HS-II, HS-III, HS-IV, HS-V, HS-VI and H-VII (overripe stage, i.e. 42 days after colour break). Fruit weight, specific gravity, hue angle, total soluble solids, TSS/acid ratio and total sugars increased whereas fruit firmness, saturation index (C*) and acidity content of fruits was found decreasing from HS-I to HS-VII. Development of typical blue-purple colour of European plum was represented by negative b* values (maximum at HS-VII, -2.01±0.27). Regression analysis of respiratory profile showed a strong relation between ethylene produced by fruits and changes in sucrose content (R^2=0.885) and loss of firmness (R^2=0.774). Oxygen consumed by fruits and CO_2 produced was also found strongly related (R^2=0.875) indicating active respiration throughout growth period. Correlation studies indicate high significant and positive coefficient value of sucrose with fructose (0.941) and glucose (0.894). Fruit composition of 25.90±0.13 g fruit weight, 1.05±0.01 g cc^{-1} specific gravity, 58.78±1.78 shore firmness, 15.26±0.72 ml kg^{-1} h^{-1} CO_2 production rate, 1.33±0.14 RQ, 18.86±1.37µl kg^{-1} h^{-1} ethylene production rate and 13.06±0.86 TSS/acidity ratio gave maximum storage life at 20°C. Among various harvesting stages observed, HS-V (i.e. 28 days after colour break) was adjudged as the optimum harvesting stage for European plum.

Biography

Neeraj has completed his Ph.D. from CCS Haryana Agricultural University in Horticulture Science with specialization in postharvest management and worked as DAAD Research Fellow in Institute fuer Gartenbauwissenschaft , Bonn University, Germany. He is working as Assistant Professor in National Institute of Food Technology Entrepreneurship and Management.

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