POSTHARVEST PHYSIOLOGY OF INDIAN JUJUBE FRUIT UNDER DIFFERENT STORAGE TEMPERATURE

Laxman Jat*, Shreedar Singh Lakhawat, Suman Gathala and Virendra Singh

Department of Horticulture, Rajasthan College of Agriculture, MPUAT, Udaipur-313001 Email: Laxmanjat1987@gmail.com

Received-01.11.2021, Revised-15.11.2021, Accepted-23.11.2021

Abstract: Indian ber cv. 'Gola' was harvested at color turning stage and stored at control, 15°C and 10 °C for 35 days of storage. Analytical determination was made at 7 d interval. Storage temperatures were found effective to inhibiting ethylene production and maintain lower physiological activities during storage, especially when stored at 10 °C. Weight loss, firmness, chilling incidence and ripening index were significantly reduced by lower storage temperature. Overall, this study suggested that lower temperature could increase storage period of Indian ber fruit with optimum quality parameters and lowest chilling incidence.

Keywords: Ethylene production, Indian jujube, Respiration rate, Ripening index

REFERENCES

Amerine, M.A., Pangborn, R.M. and Roessler. EB. (1965). Principles of Sensory Evaluation of Food. Academic Press, New York, Pp. 367–374.

[Google Scholar]

Bal, J.S. (1982). A study on biochemical changes during room and refrigerator storage of ber. *Progressive Horticulture*, 14 (2/3): 158–161.

[Google Scholar]

Bal, J.S., Randhawa, J.S. and Boora, R.S. (2010). Studies on post-harvest life of ber fruits treated with growth regulators and stored in different packages at cool temperature. *National Seminar on Impact of Climatic Change on Fruit Crops*, 214-216.

Ding, C.K., Wang, C.Y., Gross, K.C. and Smit, D.L. (2001). Reduction of chilling injury and transcript accumulation of heat shock proteins in tomato fruit by methyl jasmonate and methyl salicylate. Plant Science, 161(6):1153-1159.

[Google Scholar]

Gonzalez-Aguilar, G.A., Buta, J.G. and Wang, C.Y. (2003). Methyl jasmonate and modified atmosphere packaging (MAP) reduce decay and maintain postharvest quality of papaya 'Sunrise'. *Postharvest Biology and Technology*, 28 (3): 361-370.

[Google Scholar]

Jat, L. and Lakhawat, S.S. (2021). Effect of gamma irradiation treatment at phytosanitary dose level on physiological and consumer traits of Indian ber. Part 1. Cultivar 'Umran'. 179, 109209.

[Google Scholar]

Jat, L., Pareek, S. and Shukla, K.B. (2012). Physiological responses of Indian jujube (*Ziziphus mauritiana* Lamk.) fruit to storage temperature under modified atmosphere packaging. Journal of The Science of Food and agriculture, 93 (8): 1940–1944.

[Google Scholar]

Jawanda, J.S., Bal, J.S., Josan, J.S. and Mann, S.S. (1980). Studies on the storage of ber fruits II. Cool temperature. Punjab Horticultural Journal, 20(3/4): 171–178.

[Google Scholar]

Kovacs, E., Siddiqui, S., Kristof, Z., Toth-Markus, M. and Roth, E. (2010). Physiological and ultrastructural changes in ber (*Zizyphus mauritiana* Lamk.) fruits during ripening. *Acta Alimentaria*, 39: 109-118.

[Google Scholar]

Meena, H.R., Kingsly, A.R.P. and Jain, R.K. (2009). Effect of postharvest treatments on shelf life of ber fruits. *Indian Journal of Horticulture*, 66 (1): 58-61.

[Google Scholar]

Pareek, S., Kitinoja, L., Kaushik, R.A. and Paliwal, R. (2009). Postharvest physiology and storage of ber. *Stewart Postharvest Review*, 5 (5): 1-10.

[Google Scholar]

Prasanna, V.K.N., Rao, D.V. Sudhakar and Krishnamurthy, S. (2000). Effect of storage temperature on ripening and quality of custard apple (Annona squamosa L.) fruits. Journal of Horticultural Sciences and Biotechnology, 75: 546-550.

[Google Scholar]

Reche, J., García-Pastor, M.E., Valero, D., Hernándezc, F., Almansa, M.S., Legua, P. and Amoros, A. (2019). Effect of modified atmosphere packaging on the physiological and functional characteristics of Spanish jujube (*Ziziphus jujuba* Mill.) cv 'Phoenix' during cold storage, Sci. Hortic. 258, 1-7.

[Google Scholar]

Sharma, R.K., Sharma, S. and Siddiqui, S. (2000). Physiology of fruit ripening in jujube: A review. *Haryana Journal of Horticultural Science*, 29 (1/2): 1–5.

*Corresponding Author

[Google Scholar]

Shoba, D. and Bharati, P. (2007). Value addition to ber (*Ziziphus mauritiana* Lamk.) through preparation of pickle. Karnataka Journal of Agriculture sciences, 20 (2): 353–355.

[Google Scholar]

Singh S.P. and Sudhakar Rao D.V. (2005). Effect of modified atmosphere packaging on the alleviation of chilling injury and dietary antioxidants levels in 'Solo' papaya during cold storage. European Journal of Horticultural Science, 70(5): 246-252.

[Google Scholar]

Singh, S., Singh, A.K., Joshi, H.K., Lata, K., Bagle, B.G. and More, T.A. (2010). Effect of zero

energy cool chamber and postharvest treatments on shelf life of fruits under semi-arid environment of western India. Part 1. Ber fruits. *Journal of Food Science and Technology*, 47(6): 446-449.

[Google Scholar]

Tembo, L., Chiteka, Z.A., Kadzere, I., Akinnifesi, F.K. and Tagwira, F. (2008). Storage temperature affects fruit quality attributes of ber (*Ziziphus mauritiana* Lamk.) in Zimbabwe. African Journal of Biotechnology, 7(17): 3092–3099.

[Google Scholar]