

Exogenous gibberellic acid treatment extends green chili shelf life and maintain quality under modified atmosphere packaging

Vaibhav Kumar Maurya, Vijay Ranjan, Kodiveri Muthukaliannan Gothandam and Sunil Pareek

Scientia Horticulturae 269:108934. (2020)

Abstract

An experiment was carried out to assess the impact of gibberellic acid (GA_3) and modified atmosphere packaging (MAP) on quality attributes and shelf life of green chili cv. PKM-1. Out of 6 lots of sterilized chili samples, 3 lots were treated with 3 μ M gibberellic acid (GA_3) for 10 min. Then treated and untreated chili samples were packed under different modified atmosphere packaging (MAP): anti fog film (RD 45) and low density polyethylene (LDPE), and stored under low temperatures (8 ± 2 °C) in BOD incubator for 30 days. Chili samples treated with GA + RD extended the shelf life up to 30 days as compared GA + LDPE treated (25 days), while control, GA and C + LDPE samples had 10, 15 and 12 days of shelf life. Further, GA + RD treatment was found more effective in preserving quality attributes (firmness, total phenolic content, total flavonoid content, antioxidant activity, total chlorophyll, total carotenoids, ascorbic acid, capsaicin content, pericarp color). Anti fog film RD 45 packed samples displayed optimal CO_2/O_2 gases composition and low respiration rate as compared to samples packed in LDPE film hence extending the shelf life of green chili. Principal component analysis also indicates the synergetic effect of GA_3 and MAP in improving the quality attributes of green chili.