SPICES/CONDIMENTS

NPARR, 6(1 & 2), 2015-75 Postharvest shelf-life extension of green chillies (Capsicum annuum L.) using shellac-based edible surface coatings

Shellac-based coatings were developed in combination with starch, EDTA and sodium alginate and were evaluated for shelf-life extension of fresh green chillies during storage at ambient temperature (26 ± 2 °C, RH 68 ± 4%) for 12 days. The developed composite coatings were found to be effective in extending the shelf-life of chillies. The control samples showed a higher weight loss (12.35%) compared to coated ones (5.60-6.90%). The coated samples showed significantly (p < 0.05) higher retention of ascorbic acid, firmness and chlorophyll content, whereas, total phenolic content was found to be significantly (p < 0.05) higher in uncoated samples after 12 days of storage. Shellac-sodium alginate based coating was found to be the most effective in maintaining the quality of fresh green chillies during ambient storage as compared to other coatings [K. Chitravathi, O.P. Chauhan* and P.S. Raju (Defence Food Research Laboratory, Siddarthanagar, Mysore 570011, India), Postharvest Biology and Technology, 2014, 92, 146-148].

NPARR, 6(1 & 2), 2015-76 Could capsaicinoids help to support weight management? A systematic review and meta-analysis of energy intake data

Capsaicinoids are a group of chemicals naturally occurring in chilli peppers with bioactive properties that may help to support weight management. The aim of the present study was to conduct a meta-analysis investigating the potential effects of capsaicinoids on energy intake, to clarify previous observations and form evidence-based conclusions about possible weight management roles. Medical databases (Medline, Web of Knowledge and Scopus) were systematically searched for papers. Search terms were: ‘capsaicin’ or ‘red pepper’ or ‘chilli’ or ‘chili’ with ‘satiety’ or ‘energy intake’. Of the seventy-four clinical trials identified, 10 were included, 8 of which provided results suitable to be combined in analysis (191 participants). From the studies, 19 effect sizes were extracted and analysed using MIX meta-analysis software. Data analysis showed that capsaicinoid ingestion prior to a meal reduced ad libitum energy intake by 309.9 kJ (74.0 kcal) p < 0.001 during the meal. Results, however, should be viewed with some caution as heterogeneity was high (I² = 75.7%). Study findings suggest a minimum dose of 2 mg of capsaicinoids is needed to contribute to reductions in ad libitum energy intake, which appears to be attributed to an altered preference for carbohydrate-rich foods over foods with a higher fat content. Meta-analysys findings suggest that daily consumption of capsaicinoids may contribute to weight management through reductions in energy intake. Subsequently, there may be potential for capsaicinoids to be used as long-term, natural weight-loss aids. Further long-term randomised trials are now needed to investigate these effects [S. Whiting, E.J. Derbyshire* and B. Tiwari (School of Healthcare Science, John Dalton East Building, Oxford Road, Manchester M1 5GD, United Kingdom), Appetite, 2014, 73, 183-188].

NPARR, 6(1 & 2), 2015-77 Shelf-life enhancement of green bell pepper (Capsicum annuum L.) under active modified atmosphere storage

The effect of modified atmosphere packaging (MAP) along with moisture absorbent was assessed for maintaining quality attributes and extending shelf life of green bell pepper (Capsicum annuum L.) in bulk packages. Under active packaging the quality of capsicum were based on MAP using permeable polymeric films and sachets of silica gel crystals as moisture
absorbents. Pre-designed polypropylene film (38 µm) packages were used for storage study under MAP at 8 ± 1 °C temperature. The in-pack \( O_2 \) and \( CO_2 \) composition and respiration rate in the package headspace was monitored during storage in all the treatments. A modified atmosphere of 4.5% \( O_2 \), 7.8% \( CO_2 \) and 4.7% \( O_2 \), 7.5% \( CO_2 \) were achieved in the MA packages with and without moisture absorbent, respectively. The active packaging significantly reduced the respiration rate of fruit in the package. These packaged fruits were compared with non-packaged samples, which served as control stored at both ambient conditions (CS) and control at refrigerated temperature (CR). The quality of capsicums was assessed by physiological weight loss, color \((L^*, h^* \text{ and } C^*)\) values, firmness, ascorbic acid, decay and marketability. The shelf life of bell pepper was extended to 49 days in active packages, 42 days with MA packages, as compared to 21 days with CR packages and 7 days with CS. Above all, by placing silica crystals sachets in the head space with moisture absorbing ability, could further extend the shelf life of capscicum 7 days in addition to modified atmosphere packaging alone with 97% fruit marketability [Ranjeet Singh, S.K. Giri and N. Kotwaliwale (Agro Produce Processing Division, Central Institute of Agricultural Engineering, Nabibagh, Berasia Road, Bhopal 462 038, India), Food Packaging and Shelf Life, 2014, 1(2), 101-112].