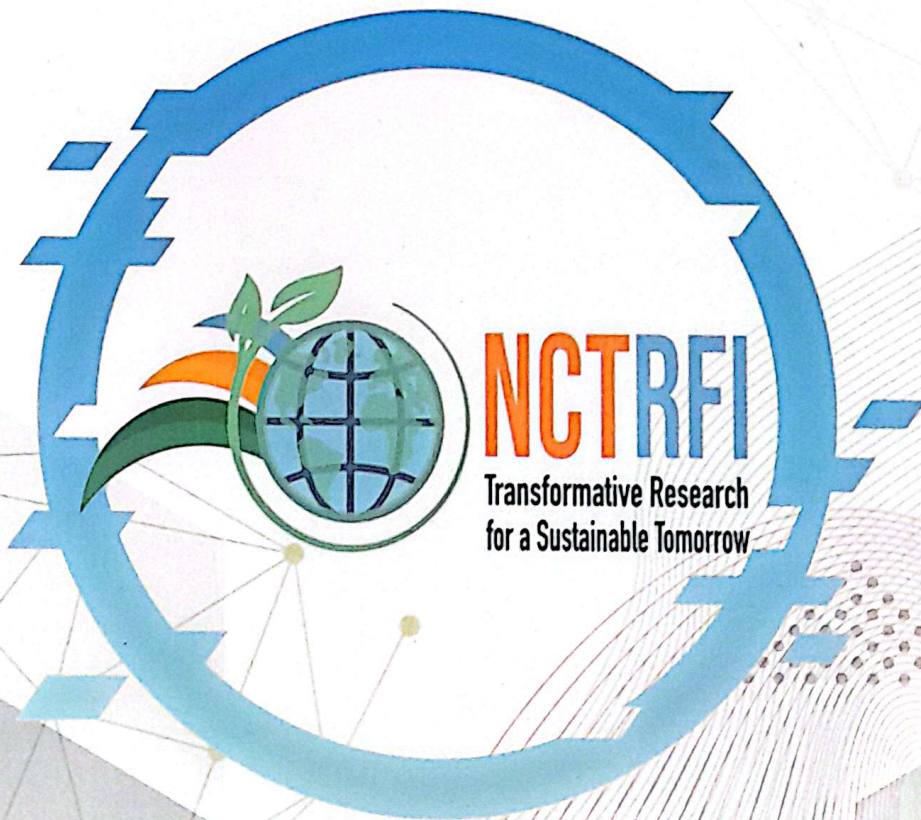




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# **Transformative Research and Its Future Impacts**



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## Effects of Botanical Extracts On The Shelf Life and Quality of Chilli (*Capsicum Annuum* L.)

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Chilli (*Capsicum annuum* L.) is one of the most important spice crops worldwide, valued not only for its spicy flavor but also for its nutritional and medicinal properties. In Bangladesh, chilli holds a special place both in daily cooking and in agriculture. However, chillies are highly perishable. After harvest, they spoil quickly due to factors like microbial infections, moisture loss, bruising, and natural aging processes. In Bangladesh, the situation is worsened by hot weather, limited cold storage, and rough handling, leading to losses as high as 25 to 40%. To minimize these losses, harvested green mature fruits of chilli were treated with the five botanical extracts (neem, marigold, tulsi, thankuni, garlic, and turmeric) of 15% concentration along with the non-treated control and was stored in ambient condition at the Horticulture Laboratory, Agrotechnology Discipline, Khulna University, Khulna during May 2025. The experiment was designed in Completely Randomized Design and were replicated thrice having 200g fruits in each replication. It was observed that tulsi was more effective in reducing weight loss than the control. There was no disease incidence in treated fruit. This investigation showed that botanical extracts extended the shelf life of chilli. Therefore, botanical extracts for chilli can be suggested for maintaining postharvest quality and extending shelf life. However, further research is recommended to determine the optimal botanical extracts concentration for chilli preservation.

**Keywords:** *Capsicum Annuum*, botanical extracts, shelf life, quality