



**A Study of the Physical Properties of Alginate-Based Coatings Incorporate with
Zingiber montanum and Curcuma longa Extracts for Inhibiting**

***Colletotrichum* spp. in Nam Dok Mai Mangoes.**

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Abstract

Nam Dok Mai mango is a widely cultivated variety in Thailand, highly regarded for its sweet flavor, pleasant aroma, and premium quality, making it ideal for export. However, production faces significant challenges from anthracnose disease caused by the fungus *Colletotrichum* spp., which leads to fruit rot and substantial economic losses. This study developed an alginate coating enriched with Cassumunar ginger and turmeric extracts to combat anthracnose in Nam Dok Mai mangoes. Results showed that a 75:25 ratio, using a 95% ethanol solvent, achieved optimal physical properties and a 69.89% antifungal efficiency. This natural alternative effectively extends shelf life and reduces chemical reliance, offering a sustainable solution for the mango export industry.

Keywords: Sodium Alginate, Cassumunar ginger, Curcuma longa, Curcumin, Anthracnose