

## PHYSICAL PROPERTIES AND *IN SILICO* TOXICITY OF SODIUM ALGINATE- SULFAMERAZINE BIOPOLYMERIC FILMS FOR FOOD APPLICATIONS

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### ABSTRACT

*Sodium alginate (SA) films were fabricated with sulfamerazine which is a type of long-acting antimicrobial agent and also care was taken to choose film-forming compounds from natural and non-contradictory materials that are safe with food contact. Films were doped with an antimicrobial agent at different concentrations, design and development were chiefly focused on the food packaging and preservation. Physical and biological properties were studied to understand the core functional characteristics and capabilities of the films. Physical properties like thickness, moisture content, solid mass, opacity, and water solubility rate were assessed and potential changes have been noted in different experimental films. DPPH free radical scavenging activity was showed potential inhibition against free radicals with regarding the concentration of film solution, a significant difference was noted in various experimental films. Toxicology of the film-forming compounds was predicted through in silico method, the safety and risk factors associated with the film-forming compounds were explored accordingly. Doping of sulfamerazine into the SA polymer matrix showed a significant effect on physical and biological properties and the same was attained in detail in the discussion part of the study.*

**KEYWORDS:** *Biopolymers, Sodium Alginate, Sulfamerazine, Antioxidant Activity, In-Silico Toxicit*

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