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(57) Abstract :

[032] The present invention relates to a biodegradable composite packaging film and a method for its preparation using naturally derived materials—sodium alginate, chitosan, and aqueous extracts of Albizia lebeck, an indigenous plant. The film is fabricated using a layer-by-layer casting technique wherein the first layer comprises sodium alginate and Albizia lebeck extract with glycerol as a plasticizer, and the second layer comprises chitosan dissolved in acetic acid with polyvinyl alcohol. The resulting film demonstrates superior mechanical strength, flexibility, antimicrobial activity, and barrier properties. It is fully biodegradable under composting or soil conditions and decomposes without releasing harmful residues. This invention offers an eco-friendly, cost-effective, and scalable alternative to synthetic plastic packaging and is particularly suitable for applications in food packaging, agriculture, and medical disposables. Accompanied Drawing [FIGS. 1-2]

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