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Gum arabic as novel lysozyme carrier polymer

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Pharmaceutically, natural carbohydrate polymers have been increased attention, particularly in the field of drug technology, as carrier systems for the reason of their approved safety, biocompatibility, and biodegradability [1]. The present work aimed to prepare Gum Arabic (GA)-loaded Lysozyme via a simple solvent evaporation method. The prepared solutions/films had investigated for the minimum film formation temperature (MFFT), biological activity, tensile strength, mucoadhesivity, thickness, surface free energy (SFE), moisture content, FTIR spectra, water uptake capacity, disintegration and dissolution. The obtained films demonstrate good enzyme activity, novel mucoadhesive properties, and high tensile strength values with improved elasticity. Moreover, the moisture content and thickness were adequate regarding long-term stability and convenient oral applicability respectively. FT-IR reveals no serious chemical interactions. Furthermore, the prepared samples elicit high water-absorbing capacity and short disintegration time with two phases of enzyme release; an immediate release followed by a slow release pattern, which may be attributed to gel formation after a complete hydration. It concluded; GA presented an innovative biopharmaceuticals carrier system with novel properties such as superior mucoadhesivity and conformation stabilizing property on the incorporated enzyme.

References:

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