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Abstract

Development of In Situ Gel Containing Phytoconstituents for the Treatment of Mouth Ulcers †

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Abstract: An ulcer that develops on the mucosal surface of the oral cavity is known as a mouth ulcer, also known as an oral ulcer or a mucosal ulcer. A mucus membrane ulcer is an open sore that is distinguished by the removal of inflammatory dead tissue. The most typical type of oral ulcer is aphthous stomatitis. This investigation focuses on temperature-sensitive in situ gel formulations, which change their phase in response to body heat from liquid to semisolid gel. These are easily administered into the buccal cavity at the ulcer site and are a free-flowing liquid at room temperature. Utilizing various polymers, a temperature-sensitive in situ gel comprising phytoconstituents was developed utilising the cold technique. To optimise various types and concentrations of polymers, including carbopol, Poloxamer 188 (P 188), Poloxamer 407 (P 407), and others, preliminary research was conducted. For the formulation, 20% P 188 and 15% P 407 were employed because there is a correlation between the amount of poloxamers and thermogelling transition temperatures (Tsol-gel). A blend of phytoconstituents found in the extracts of *Glycyrrhizin glabra* and *Psidium guava* is used in the formulation of mouth ulcers because, as we know, they have fewer negative effects than synthetic chemicals. The outcomes demonstrated improved homogeneity, stability, gelation temperature, and spreadability for the developed product, which was regarded as satisfactory. The created formulation can also lessen dose variation and treat oral ulcers in the most effective way, with improved patient compliance.

Keywords: aphthous stomatitis; in situ gel; phytoconstituents

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