ABSTRACT

Burn are skin wounds caused by exposure to heat or chemicals and represent a significant global public health concern. According to WHO data, the prevalence of burns exceeds 11 million cases requiring medical treatment each year. One approach to accelerating the wound healing process is by maintaining moisture using wound dressings. Hydrogels as wound dressings are an attractive option due to their ability to maintain high water content 70–90% creating an ideal moist environment for wound healing. This study aims to develop an amorphous hydrogel based on carboxymethyl cellulose (CMC) and hyaluronic acid (HA), formulated to adapt to irregularly shaped wounds. CMC was chosen for its hydrophilic properties, which enhance the mechanical stability of the hydrogel, while HA plays a role in supporting tissue regeneration, maintaining hydration, and providing antimicrobial effects. The hydrogel was prepared by mixing 2.5% HA and 5% CMC with varying ratios of 1:1, 1:3, 1:5 (v/v) and 2.5% HA as a control. Characterization was performed through viscosity, fluid affinity, stability, and spreadability tests. The results showed that the hydrogel with formulation HA:CMC ratio of 1:1 performed best, with a viscosity of 87.220 cps, liquid absorption reaching 34.56%, and stability and spreadability suitable for topical application. Thus, this formulation has the potential as an effective wound dressing to support optimal burn wound healing.

Keyword: *amorphous hydrogel, carboxymethyl cellulose* (CMC), *hyaluronic acid, burn wound, wound dressing*.