

ABSTRACT

Injuries experienced by people with diabetic mellitus, if not treated appropriately, can cause amputation and even risk death. Treatment of diabetic wounds can utilize natural ingredients, one of which is kersen leaves because they have anti-inflammatory and antibacterial properties. Nanospray preparations were chosen because they have a very small size so that they can increase drug absorption and the therapeutic effect to be more optimal. The purpose of this study is to determine the characteristics of the nanospray formulation of kersen leaf extract and to determine the effectiveness of nanospray on diabetic wounds in experimental animals. This research method is experimental *laboratories* by conducting a kersen leaf extraction process by maceration method using 96% ethanol solvent in a ratio of 1:5. Nanospray preparations were made in 3 formulas with different concentrations of kersen leaf extract of 25 mg (F1), 50 mg (F2), and 100 mg (F3). The evaluation of the preparation included organoleptic test, pH test, particle size test, polydispersity index test, and effectiveness test on diabetic rat wounds. The effect of differences in extract concentration on pH and wound effectiveness was analyzed using One Way Annova with SPSS 16.0 and a significance level of 95%. The results showed that the nanospray preparation of kersen leaf extract had a greenish-yellow color, a distinctive odor of kersen leaf extract, and a clear–cloudy color. All formulas are homogeneous, pH value 4.7–6.2; F1 and F2 are nano-sized, while F3 is not (>100). The difference in the concentration of kersen leaf extract affected the pH value of the preparation ($p < 0.05$). Nanospray of kersen leaf extract F2 had the best effect in healing the wounds of *S. aureus*-induced diabetic rats ($p < 0.05$).

Keywords: *Muntingia calabura*, diabetic wound, formulation, nanospray, *Staphylococcus aureus*

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