

INTISARI

Ekstrak kulit buah manggis (*Garcinia mangostana* L.) bermanfaat sebagai antioksidan yang dapat menangkal bahaya radikal bebas penyebab berbagai penyakit melalui penetralkan elektron tidak berpasangan. Tingginya potensi antioksidan membuat ekstrak kulit buah manggis (EKBM) banyak diformulasi menjadi sediaan topikal. Penelitian ini bertujuan untuk mengevaluasi sifat fisik gel EKBM dan pengaruh pemberian propilen glikol, nerolidol dan *camphor* 3% pada gel EKBM terhadap pelepasan senyawa yang memiliki aktivitas penangkapan radikal bebas dan total mangostin.

EKBM diformulasi dalam gel dengan penambahan 0% propilen glikol (formula 1) dan 20% propilen glikol (formula 2). Nerolidol dan *camphor* 3% ditambahkan pada formula terpilih. Uji pelepasan menggunakan sel difusi dan membran selofan. Sampel diambil pada jam ke-1, 2, 3, 5, 6, 22, dan 24. Sifat fisik gel yang diuji meliputi viskositas, pH, sineresis, daya sebar dan daya lekat. Data dianalisis menggunakan SPSS.

Penambahan 20% propilen glikol meningkatkan viskositas, memperkecil luas sebaran gel, tidak mempengaruhi pH dan daya lekat. Formula 1 dan formula 2 tidak mengalami sineresis selama tiga hari pengamatan. Pelepasan senyawa yang memiliki aktivitas penangkapan radikal bebas gel formula 1 lebih besar dibanding formula 2 tetapi tidak berbeda bermakna pada formula yang mengandung nerolidol dan *camphor*. Pelepasan total mangostin tidak dapat dikuantifikasi dengan spektrofotometri UV.

Kata kunci : ekstrak kulit buah manggis, nerolidol, *camphor*, antioksidan, pelepasan

ABSTRACT

Mangosteen rind extract (*Garcinia mangostana* L.) has antioxidant activity that can be used to counter the danger of free radicals causing various diseases through unpaired electron neutralizing mechanisms. High antioxidant activity makes mangosteen rind extract (MRE) widely formulated in topical dosage forms. The aim of this study was to evaluate the physical properties of MRE gel and the effect of propylene glycol, nerolidol and camphor 3% addition in MRE gel on the release of compounds that have radical scavenging activity and total mangosteen.

MRE was formulated in gel with addition of 0% propylene glycol (formula 1) and 20% propylene glycol (formula 2). Nerolidol and *camphor* 3% were added in optimum formula. MRE gel's releasing was tested by using diffusion cells with cellophane membrane. Sampling was performed at 1st, 2nd, 3rd, 5th, 6th, 22nd, and 24th hours. Physical properties evaluations of MRE gel were viscosity, pH, syneresis, spreadability, and stickiness. Data were analyzed using SPSS.

Addition of 20% of propylene glycol resulted an increase in viscosity, reduce spreadability but did not affect pH and stickiness of MRE gel. Formula 1 and formula 2 did not undergo syneresis for three days observation. Release of compounds having radical scavenging activity of formula 1 was greater than the formula 2, while formula with nerolidol and camphor was not significantly different. Total mangosteen release could not be quantified with UV spectrophotometry.

Keywords: Mangosteen rind extract, nerolidol, camphor, antioxidant, releasing