

PREPARASI DAN EVALUASI FISIK GRANUL INSTAN DARI EKSTRAK DAUN KIRINYUH (*Chromolaena odorata*) SEBAGAI ANTIOKSIDAN

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ABSTRAK

Radikal bebas dapat menyebabkan kerusakan sel dan memicu penyakit degeneratif. Antioksidan dibutuhkan untuk menetralkan efek tersebut. Daun kirinyuh (*Chromolaena odorata*) mengandung flavonoid yang diketahui memiliki aktivitas antioksidan. Penelitian ini bertujuan untuk memformulasi dan mengevaluasi sifat fisik sediaan granul instan dari ekstrak daun kirinyuh serta menilai aktivitas antioksidannya. Ekstrak diperoleh melalui metode maserasi dengan etanol 70% dan diformulasikan menjadi granul menggunakan metode granulasi basah dengan eksipien PVP, manitol, aspartam, natrium benzoat, laktosa, dan aquadest. Tiga formula dengan variasi konsentrasi PVP (1%, 3%, dan 5%) diuji secara organoleptik, laju alir, waktu larut, sudut diam, pH, kadar air (LOD), dan preferensi hedonik. Aktivitas antioksidan diuji menggunakan metode DPPH. Hasil menunjukkan seluruh formula memenuhi syarat fisik sediaan granul. Formula III (5% PVP) memiliki laju alir terbaik sebesar $6,48 \pm 0,10$ g/detik. Nilai IC_{50} ekstrak daun kirinyuh sebesar 30,48 $\mu\text{g/mL}$ (sangat kuat), sedangkan IC_{50} sediaan granul sebesar 83,23 $\mu\text{g/mL}$ (kuat). Kesimpulannya, granul instan ekstrak daun kirinyuh menunjukkan kualitas fisik yang baik dan aktivitas antioksidan yang kuat.

Kata kunci: *Chromolaena odorata*, granul instan, antioksidan, IC_{50} , DPPH.

PREPARATION AND PHYSICAL EVALUATION OF INSTANT GRANULES FROM KIRINYUH LEAF (*CHROMOLAENA ODORATA*) EXTRACT AS AN ANTIOXIDANT

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ABSTRACT

Free radicals can cause cellular damage and contribute to degenerative diseases. Antioxidants are required to neutralize these effects. Chromolaena odorata leaves contain flavonoids known for their antioxidant activity. This study aimed to formulate and evaluate the physical characteristics of instant granules from Chromolaena odorata leaf extract and assess their antioxidant activity. The extract was obtained by maceration with 70% ethanol and processed into granules using the wet granulation method with excipients such as PVP, mannitol, aspartame, sodium benzoate, lactose, and distilled water. Three formulas with varying concentrations of PVP (1%, 3%, and 5%) were evaluated for organoleptic properties, flow rate, solubility time, angle of repose, pH, moisture content (LOD), and hedonic preference. Antioxidant activity was measured using the DPPH method. The results showed that all formulas met the physical quality standards for granules. Formula III (5% PVP) showed the best flowability at 6.48 ± 0.10 g/sec. The IC_{50} value of the leaf extract was 30.48 μ g/mL (very strong), while the IC_{50} value of the granule formulation was 83.23 μ g/mL (strong). In conclusion, Chromolaena odorata instant granules demonstrated good physical characteristics and strong antioxidant potential.

Keywords: Chromolaena odorata, instant granules, antioxidant, IC_{50} , DPPH