

INTISARI

Tanaman seledri (*Apium graveolens* L.) telah lama dimanfaatkan sebagai bahan pengobatan tradisional sebagai antihipertensi oleh masyarakat Indonesia. Herba seledri mengandung senyawa fenolik, salah satunya apigenin yang memiliki efek antihipertensi melalui mekanisme vasorelaksasi. Senyawa fenolik rentan mengalami oksidasi, sehingga mengurangi bahkan menghilangkan aktivitas farmakologisnya apabila digunakan dalam pengobatan. Penelitian ini dilakukan untuk mengetahui pengaruh pH dan suhu terhadap stabilitas fisika dan kimia sediaan sirup antihipertensi ekstrak etanolik herba seledri (*A. graveolens*).

Ekstrak kental seledri dibuat dengan metode maserasi menggunakan pelarut etanol 70%. Selanjutnya ekstrak kental diformulasikan menjadi sirup dengan variasi pH dengan penggunaan larutan dapar pH 5, 7, dan 8 untuk mengetahui pengaruh pH terhadap stabilitas fisika dan kimia sediaan sirup ekstrak etanolik seledri, serta digunakan suhu 40, 55, dan 70 °C untuk mengetahui pengaruh suhu terhadap stabilitas fisika dan kimia sediaan sirup. Sifat fisika yang diamati meliputi organoleptis, pH sirup, viskositas, dan durasi pengendapan. Sifat kimia yang diamati adalah kadar dan kecepatan degradasi (k), serta energi aktivasi (Ea) flavonoid total relatif terhadap kuersetin.

Hasil penelitian menunjukkan bahwa pH dan suhu mempengaruhi stabilitas fisika dan kimia sediaan. Stabilitas fisika sediaan meningkat pada pH yang lebih asam pada rentang pH 5,40-7,45 dan suhu yang lebih rendah pada rentang suhu 40-70 °C. Perubahan pH dan viskositas sirup semakin kecil pada pH yang semakin asam. Namun, pH sirup tidak mempengaruhi sifat organoleptis, durasi stabilitas, dan juga tanggap rasa dari keempat formula. Stabilitas kimia sirup terbaik adalah Formula 2 yang memiliki pH terendah dengan $t_{1/2}$ dan t_{90} paling lama, sedangkan stabilitas terjelek adalah Formula 3 yang memiliki pH netral dengan $t_{1/2}$ dan t_{90} paling pendek. Sedangkan Formula 1 dan 4 berada pada urutan kedua dan ketiga. Semakin tinggi suhu, semakin besar nilai k (kecepatan degradasi) formula. Nilai k paling besar pada suhu 70 °C dan paling kecil pada suhu 40 °C.

Kata kunci: Antihipertensi, Seledri, Sirup, Stabilitas

ABSTRACT

Celery (*Apium graveolens* L.) has long been cultivated as a traditional herb remedy for anti-hypertension by Indonesians. Celery contains coumarin, saponin, tannin, essential oil, vitamin A, vitamin B, vitamin C, asparagine, and flavonoid compounds. Flavonoid is the main secondary metabolite in celery. Flavonoid contained in celery are including apiin, apigenin, and luteolin. Celery is found to have vasorelaxant effect as a remedy for anti-hypertension. (Yan, Jun et.al, 2014) (Indonesian Food and Drug Control, 2010) (Zhang et.al, 2002).

Thick extract of celery is obtained by maceration method using 70% ethanol, which later is formulated into celery syrup thus it will be ready for consumption and also as qualified pharmaceutical preparation. Celery, like other types of plant, also contain phenol compound. Phenol is likely to undergo oxidation process, in which it may reduce or even eliminate its pharmacological activities while it is used for medication. pH scale is one of the controlling factors in the rates of oxidation of phenols. The effects of pH variation on the stability of celery ethanol extract are obtained by using the formulation of buffer solution (pH 5, 7, and 8).

The purpose of stability test accelerated at 40, 55, and 70 °C temperature is to provide the stability of the syrup preparation. The stability test of the syrup measures the pH effects on its physical and chemical properties. Physical properties measured by its organoleptic, pH, viscosity, stability period, and taste test. Chemical properties measured by total flavonoid compound, since flavonoid is the main secondary metabolite in celery. The result of the study shows the effect of pH of the syrup on physical stability by its viscosity. The lower the pH level, the higher the viscosity of the syrup. However, pH level does not have any effect on its organoleptic, stability period, and taste test of the four formula. The chemical stability of the syrup is affected by its pH level. The best stability can be found in Formula 2 which has the lowest pH with the longest $T_{1/2}$ and T_{90} , while the worst stability can be found in Formula 3 which has neutral pH with the shortest $T_{1/2}$ and T_{90} . Moreover, Formula 1 and 4 are in the second and third place, respectively.

Keywords: Anti-hypertension, Celery, Syrup, Stability