

INTISARI

ASWADI, M. N., 2018, FORMULASI DAN KARAKTERISASI NANOKAPSUL MINYAK BIJI MAHONI DENGAN METODE EMULSI SONIKASI, SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA.

Minyak biji mahoni tidak larut dalam air sehingga sulit diaplikasikan ke dalam produk pangan dan sifatnya kurang stabil terhadap panas, sinar *UV*, dan kelembaban sehingga mudah mengalami penurunan aktivitas biologisnya. Salah satu pendekatan kelarutan dan stabilitasnya adalah nanokapsul. Penelitian ini bertujuan untuk mengetahui metode emulsi sonikasi dapat menghasilkan nanokapsul dengan stabilitas dan karakterisasi yang baik pada berbagai jenis polimer.

Proses nanokapsul minyak biji mahoni dilakukan dengan metode emulsi sonikasi selama 2 menit untuk mengubah menjadi ukuran nanometer menggunakan variasi jenis dan konsentrasi polimer formula PVA, Na-Alginat, dan HPMC berturut-turut 3% ; 0,4% ; 0,3% dengan konsentrasi Tween 80 yang tetap yaitu 3%. Sediaan nanokapsul dari formula di uji ukuran partikel, zeta potensial, persen transmittan, dan stabilitasnya meliputi uji *freeze-thaw cycle*, dan uji sentrifugasi.

Hasil penelitian menunjukkan minyak biji mahoni dapat dibuat menjadi sediaan nanokapsul. Ukuran efisiensi nanokapsul diperoleh dari formula 1, 2, dan 3 sebesar $195,6 \pm 4,979$ nm, $419,9 \pm 33,75$ nm, dan $328,4 \pm 32,57$ nm. Nanokapsul dengan konsentrasi polimer Na-Alginat 0,4% dengan waktu sonikasi 2 menit diperoleh hasil ukuran partikel sebesar $419,5 \pm 33,75$ nm, indeks polidispersitasnya $0,501 \pm 0,009$ menjadi $495,5 \pm 81,13$ nm, indeks polidispersitas $0,488 \pm 0,108$, dan zeta potensial sebesar $-74,1 \pm 3,11$ mV sehingga terpilih ukuran, keseragaman, dan stabilitas yang paling baik dibandingkan dengan formula lain.

Kata Kunci : Minyak biji mahoni, nanokapsul, polimer Na-Alginat, sonikasi

ABSTRACT

ASWADI, M. N., 2018, FORMULATION AND CHARACTERIZATION NANOCAPSULE OILS OF MAHOGANY SEED WITH SONICATION EMULSION METHODS, THESIS, PHARMACEUTICAL FACULTY, UNIVERSITY OF SETIA BUDI, SURAKARTA.

Oils of mahogany seed is not soluble in water consequently it was difficult to applied to inappropriate in the product of food and are first of all the less volatile with respect to heat, UV ray, and moisture so that it can easily has experienced a fall in the activity of but. One of the approaches the solubility of and stability is nanocapsule. This study aims to in order to understand the a method of an emulsion sonication to be able to produce nanocapsule with the stability of the country and characterization as it seemed good to a variety of the kinds of polymer .

The process of nanocapsule oils of mahogany seed have been carried out with a method of an emulsion sonication as long as 2 minutes to turn to be nanometer size employing variations the type and the concentration of a polymer PVA and final day of formula , Na-alginat , and HPMC consecutive 3% ; 0,4% ; 0,3% by concentration of the tween 80 still 3%. Preparations nanocapsule from a formula tested size of particles, zeta potencial, percent transmitan, and the stability take in freeze-thaw cycle test, and centrifugation test.

The results showed oils of mahogany seed can be made into nanocapsule preparations. Size of nanocapsule efficiency was obtained from formula 1, 2, and 3 by $195,6 \pm 4,979$ nm, $419,9 \pm 33,75$ nm, dan $328,4 \pm 32,57$ nm. Nanocapsule concentration of polymer Na-alginat 0,4% with time sonication two minutes the results size of particles of $419,5 \pm 33,75$ nm, polidispersity index $0,501 \pm 0,009$ to $495,5 \pm 81,13$ nm, polidispersity index $0,488 \pm 0,108$, and zeta potential of $-74,1 \pm 3,11$ mV so elected measure, uniformity, and stability which is best compared to other formula.

Keywords: Mahogany seed oil, nanocapsule, Na-Alginate polymer, sonication