

**FORMULASI, KARAKTERISASI, DAN UJI STABILITAS
SNEDDS (*Self-Nanoemulsifying Drug Delivery Systems*)
EKSTRAK BIJI JINTAN HITAM (*Nigella sativa L.*)**

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INTISARI

Ekstrak jinten hitam (*Nigella sativa L.*) dikembangkan menjadi SNEDDS (*Self-nanoemulsifying Drug Delivery System*) karena memiliki sifat lipofilik yang sukar larut dalam air. Penelitian ini bertujuan untuk melakukan formulasi, karakterisasi, dan untuk menguji stabilitas ekstrak jinten hitam dalam bentuk SNEDDS. Uji kelarutan ekstrak jinten hitam dilakukan untuk memilih basis SNEDDS berupa fase minyak, surfaktan dan kosurfaktan. Uji karakteristik dilakukan dengan melihat ukuran partikel, zeta potensial dan %transmitan. Uji stabilitas dilakukan melalui uji sentrifugasi, uji panas-dingin, dan uji beku-cair. Setelah dilakukan uji stabilitas, formula yang tidak memisah dilanjutkan ke pengujian selanjutnya yaitu uji ketahanan dengan pengenceran (*robustness to dilution*). Berdasarkan uji kelarutan, didapatkan bahwa minyak akar wangi, *cremophor RH*, dan PEG 400 mampu melarutkan ekstrak jinten hitam dengan baik. Dari uji %transmittan basis SNEDDS, formula 1 sampai 10 dengan rentang minyak akar wangi 10 – 40%, *cremophor RH* 80% - 50% dan PEG 400 10% - 30% memberikan nilai %transmittan diatas 80%. Pada uji karakterisasi, didapat ukuran partikel dengan rentang 21,86 nm – 187,30 nm, zeta potensial dengan rentang -33,30 mV - -43,40 mV. Formula dengan komposisi minyak akar wangi 10% dan 30%, *cremophor RH* 70% dan 60% serta PEG 400 20% dan 10% merupakan formula yang lolos uji stabilitas termodinamik dan uji ketahanan. Dapat disimpulkan bahwa SNEDDS ekstrak jinten hitam pada formula 2 dan 7 telah sesuai dengan ketentuan pembuatan SNEDDS.

Kata kunci: *Nigella sativa L.*, basis SNEDDS ekstrak jinten hitam, uji stabilitas.

**FORMULATION, CHARACTERIZATION AND STABILITY TEST OF
BLACK CUMIN SEEDS (*Nigella sativa L.*) SELF-NANOEMULSIFYING
DRUG DELIVERY SYSTEM (SNEDDS)**

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ABSTRACT

Black cumin (*Nigella sativa L.*) was developed as SNEDDS (Self-nanoemulsifying Drug Delivery System) because its water insoluble. This study is aimed to formulate, characterize, and test the stability of black cumin extract in the SNEDDS formulation. Solubility test of black cumin extract was performed to select oil phase, surfactant and cosurfactant. The characteristic test is performed by determining particle size, zeta potential and %transmittant. The stability test is performed through centrifugation test, heating-cooling test, and freeze-thaw test. After the stability test, formulas that were not separate is continued to the next test which is robustness to dilution. Solubility test showed that vetiver oil, cremophor RH, and PEG 400 were able to dissolve black cumin extract well. From %transmittan test, formula 1 – 10 with vetiver oil in range 10% - 40%, *crempophor RH* 80% - 50% and PEG 400 10% - 30% are the best formulas with %transmittan above 80%. In characteristic test, the result of particle size are from range 21,86 nm – 187,30 nm, zeta potential from range -33,30 mV - -43,40 mV. Formula with 10% and 30% vetiver oil, 70% and 60% *cremophor RH* and 20% and 10% PEG 400 are formulas that passed the stability test and robustness to dilution test. It can be concluded that SNEDDS extract of black cumin in formula 2 and 7 has been in accordance with the provision of SNEDDS.

Keywords: *Nigella sativa L.*, SNEDDS extract base of cumin, stability test.