

## INTISARI

**PARETA, D., N., 2016, FORMULASI *SELF-NANOEMULSIFYING DRUG DELIVERY SYSTEM* (SNEDDS) MINYAK ATSIRI BIJI PALA (*Myristica fragrans* Houtt), TESIS, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA.**

Minyak atsiri biji pala merupakan minyak atsiri yang berasal dari tanaman pala (*Myristica fragrans* Houtt) yang banyak digunakan sebagai obat bronkhitis, antibakteri dan sebagai antioksidan. Minyak atsiri biji pala memiliki kekurangan yaitu stabilitas yang kurang baik. Hal ini dapat diatasi dengan aplikasi nano teknologi dengan sistem penghantaran *self-nanoemulsifying drug delivery system* (SNEDDS) yang akan melindungi minyak atsiri biji pala dan mengoptimalkan aktivitas farmakologinya. SNEDDS minyak pala dibuat dengan menambahkan fase minyak, surfaktan dan ko-surfaktan.

Fase minyak, surfaktan dan ko-surfaktan dalam formula SNEDDS minyak atsiri biji pala ditentukan berdasarkan hasil seleksi. Penentuan formula terbaik dilihat dari hasil *drug loading*. Formula optimum kemudian dikarakterisasi waktu emulsifikasi serta stabilitas dalam cairan lambung dan usus buatan, distribusi ukuran partikel dan potensial zeta.

SNEDDS minyak atsiri biji pala menghasilkan nanoemulsi yang homogen. Nilai transmittansi 98,5% dengan waktu emulsifikasi 1,39 menit pada *aquadestilata*, 1,96 menit pada larutan lambung buatan, 1,25 menit, pada larutan usus buatan dan stabil selama 24 jam. Komposisi formula optimum SNEDDS minyak atsiri biji pala terdiri dari 1,42 mL VCO, 8 mL Tween 80, 1 mL PEG 400 mampu membawa 4 mL minyak atsiri biji pala dan menghasilkan diameter ukuran partikel 19,1 nm dan ukuran zeta potensial sebesar -0,2 mV serta stabil dalam penyimpanan selama 10 hari.

Kata kunci: Minyak atsiri biji pala, nanoemulsi, SNEDDS, VCO, Tween 80, PEG 400 antioksidan.

## ABSTRACT

**PARETA, D., N., 2016, Formulation SELF-NANOEMULSIFYING DRUG DELIVERY SYSTEM (SNEDDS) ESSENTIAL OIL SEEDS PALA (*Myristica fragrans* Houtt), TEXTBOOK, FACULTY OF PHARMACY, UNIVERSITY OF SETIA BUDI, Surakarta.**

Nutmeg essential oil is an essential oil derived from plants nutmeg (*Myristica fragrans* Houtt) are widely used as a cure bronchitis, antibacterial and antioxidant. Nutmeg essential oil has the disadvantage that stability is not good. This can be overcome by the application of nano technology with self-nanoemulsifying delivery system drug delivery system (SNEDDS) which will protect the essential oils of nutmeg and optimize the pharmacological activity. SNEDDS nutmeg oil is made by adding the oil phase, surfactant and co-surfactant.

The oil phase, surfactant and co-surfactant in the formula SNEDDS nutmeg essential oil is determined based on the results of selection. Determining the best formula seen from the results of drug loading. The optimum formula was then characterized the time of emulsification and stability in gastric fluid and artificial intestinal, particle size distribution and zeta potential.

SNEDDS nutmeg essential oil produces a homogeneous nanoemulsi. Transmittance value of 98.5% with a time of 1.39 minutes on aquadestilata emulsification, 1.96 minutes in artificial gastric solution, 1.25 minutes, the artificial gut and stable solution for 24 hours. The composition of the optimum formula SNEDDS nutmeg essential oil consisted of 1 mL VCO, 8 mL Tween 80, 1 mL of PEG 400 is capable of carrying 4 mL nutmeg essential oil and produced 19.1 nm diameter particle size and zeta potential measurement of -0, 2 mV and is stable in storage for 10 days.

Keywords: Essential oils of nutmeg, nanoemulsi, SNEDDS, VCO, Tween 80, PEG 400 antioxidant.