

Combined Neem Oil 6% w/w and Eucalyptus Oil 16% w/w Lotion for Treating Head Lice: In Vitro and In Vivo Efficacy Studies

Prasutr Thawornchaisit, Weerawan Amornsak, Pakpimol Mahannop, Prayute Buddhirakkul, Wongdyan Pandii, Paul Connellan, Dion Thompson, Don Brushett, Carol Morris

ABSTRACT

Aim: To test a combined neem oil 6% w/w and eucalyptus oil 16% w/w lotion for the whole-of-life cycle treatment of human head lice (*Pediculus humanus var. capitis*) infestation. Method: Preliminary formulations of dilutions of neem and eucalyptus oils in isopropanol were tested for pediculicidal and ovicidal efficacies against *Pediculus humanus var. capitis*. This trial informed the development of a stable formulation consisting of neem oil 6% w/w and eucalyptus oil 16% w/w in a hydrophobic carrier (mixture of lanolin and silicones), which was also tested in vitro for pediculicidal and ovicidal efficacies against *Pediculus humanus var. capitis*. The lotion was then tested in vivo (clinical study) in volunteer Thai female students. At the conclusion of the in vivo study, participants and their parents/guardians completed a questionnaire pertaining to their perceptions and acceptance of the treatment.

Results: Initial in vitro testing demonstrated pediculicidal and ovicidal efficacies of 96% and 100%, respectively. The clinical study involving 45 volunteer Thai female students aged 7 to 12 years, with 2 applications of the lotion on the scalp and hair 1 week apart, showed significant in vivo activity. Pediculicidal efficacies of 93% and 97% and ovicidal efficacies of 80% and 100% were measured 2 days after the first and second application of the lotion. Participants and their parents/guardians indicated strong acceptance of the formulation.

Conclusion: The combined neem oil 6% w/w and eucalyptus oil 16% w/w lotion demonstrated high pediculicidal and ovicidal efficacy for *Pediculus humanus var. capitis* infestation.

J Pharm Pract Res 2012; 42: 189-92.