Annales Pharmaceutiques Françaises (2016) xxx, xxx—xxx

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ORIGINAL ARTICLE

Development and efficacy assessments of tea seed oil makeup remover

Développement et mesure d'efficacité d'un démaquillant à base d'huile de thé

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Received 27 August 2016; accepted 8 November 2016

KEYWORDS
Tea seed oil;
Color cosmetics;
Makeup remover;
Spectroscopy;
Cleansing efficacy

Summary
Introduction. — The efficacy of tea seed oil to clean foundation and eyeliner was evaluated. The safe and efficient tea seed oil makeup remover was developed.
Materials and methods. — In vitro cleansing efficacy of makeup remover was UV-spectrophotometric validated. The stability evaluation by means of accelerated stability test was conducted. In vitro and in vivo cleansing efficacy of the removers was conducted in a comparison with benchmark majorly containing olive oil.
Results. — Tea seed oil cleaned 90.64 ± 4.56% of foundation and 87.62 ± 8.35% of eyeliner. The stable with most appropriate textures base was incorporated with tea seed oil. Three tea seed oil removers (50, 55 and 60%) were stabled. The 60% tea seed oil remover significantly removed foundation better than others (94.48 ± 3.37%; $P < 0.001$) and the benchmark (92.32 ± 1.33%), but insignificant removed eyeliner (87.50 ± 5.15%; $P = 0.059$). Tea seed oil remover caused none of skin irritation as examined in 20 human volunteers. A single-blind, randomized control exhibited that the tea seed oil remover gained a better preference over the benchmark (75.42 ± 8.10 and 70.00 ± 7.78%; $P = 0.974$).

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http://dx.doi.org/10.1016/j.pharma.2016.11.001

Please cite this article in press as: Parnsamut N, et al. Development and efficacy assessments of tea seed oil makeup remover. Ann Pharm Fr (2016), http://dx.doi.org/10.1016/j.pharma.2016.11.001

Conclusion. — The safe and efficient tea seed oil makeup removers had been developed. The consumers' choices towards the makeup remover containing the bio-oils are widen. In vitro cleansing efficacy during the course of makeup remover development using UV-spectrophotometric method feasible for pharmaceutic industries is encouraged.

MOTS CLÉS
Huile de thé ;
Cosmétiques colorés ;
Démaquillants ;
Spectroscopie ;
Efficacité de nettoyage

Résumé
Introduction. — L'efficacité de l'huile de graines de thé pour nettoyer le fond de teint et l'eyeliner a été évaluée. Un démaquillant à l'huile de thé, sans danger et efficace, a été développé.
Matériels et méthodes. — L'efficacité de nettoyage in vitro du démaquillant a été validée par spectrophotométrie UV. L'évaluation de stabilité au moyen d'un essai de stabilité accélérée a été réalisée. L'efficacité de nettoyage in vitro et in vivo a été déterminée par comparaison avec une préparation de référence contenant majoritairement de l'huile d'olive.
Résultats. — Huile de graines de thé : % de nettoyage : 90,64 ± 4,56 % pour le fond de teint et 87,62 ± 8,35 % pour l'eyeliner. Une base de texture la plus appropriée a été incorporée à l'huile de graines de thé. Trois pourcentages d'huile de graines de thé (50, 55 et 60 %) ont été testés. L'huile de graines de thé à 60 % a significativement mieux éliminé le fond de teint (94,48 ± 3,37 %, p <0,001) que la préparation de référence (92,32 ± 1,33 %), mais pas l'eyeliner (87,50 ± 5,15 %; p = 0,059). L'huile de graines de thé n'a causé aucune irritation de la peau comme testé chez 20 volontaires. Lors du contrôle en aveugle et randomisé, il n'a cependant pas été montré que le dissolvant à base d'huile de graines de thé était préféré par rapport à la préparation de référence (75,42 ± 8,10 et 70,00 ± 7,78 %, p = 0,974).
Conclusion. — Des démaquillants à l'huile de thé ont été développés. La mesure de l'efficacité du nettoyage in vitro au cours du développement industriel d'un démaquillant utilisant la méthode UV spectrophotométrique est encouragée.

Introduction

Skin appearance is a significant evidence impacting self-esteem contributing physical well-being and positive social relationships. Application of cosmetics is aiming to improve positive social attractiveness in particular makeup cosmetics.

Advanced research leading to formulation of water resistance makeup products contribute in excellent holding capacity with a good resistance against sweat and sebum even during in gym or swimming. The prevalence desired of makeup products is frankly for prolonging a wearing period that needed not to be reapplied. In addition, those with waterproof claimed typically have to be removed by makeup remover. These preferred characters of facial coloring products in turn make them hardly to be cleaned. Therefore, specific makeup cleanser is developed and commonly called makeup remover [1].

UV-Vis spectrophotometer is an appointed technique for cleansing ability quantification. This method is feasible and reliable for routine evaluation of the makeup remover efficacy in vitro [1,2]. In addition to cleansing efficacy of the remover that must be verified, a good quality makeup remover achieving the consumers' preference, of which those of natural oils are highly in focus.

Tea seed oil extracted from the seed of *Camellia oleifera* Abel. is used extensively in Asian cuisine including personal care products [3]. The oil has been topically applied to treat skin burn with a remarkable antioxidant activity [4]. This edible oil has health benefits comparable to olive and better than sunflower oils [5] due to bioactive fatty acid constituents, palmitic, linoleic, oleic and stearic acids that are important in cosmetics. The fatty acids are used for skin, hair and nail nourishing, inflammatory, dandruff and hair loss treatments with the ability to enhance hair growth. They exhibit skin and nail hydrating effects and suppress sebum secretion in the same time and are used in acne care product [6]. Tea seed oil is therefore subjectively examined upon its makeup removal efficacy and developed into the makeups cleansing product consequently.

Material and methods

Material and instruments

Tea seed oil (Biochemica, USA) was examined upon cleansing efficacy against liquid foundation (Colorstay, Revlon, USA) and liquid eyeliner (So Black Matte Liquid Eyeliner, Mistine, Thailand) in 95% ethanol (Labscan, Ireland) using UV-Visible

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