

5th International Conference and Exhibition onPHARMACOGNOSY, PHYTOCHEMISTRY
& NATURAL PRODUCTS

July 24-25, 2017 Melbourne, Australia

Resveratrol-enriched rice suppresses atopic skin inflammation in the NC/Nga murine model of atopic dermatitisMinchoel Kang, Minsun Jeong, Kyu Hee Cho and Sun Yeou Kim
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Atopic Dermatitis (AD) is a chronic inflammatory skin disease that has characterized by pruritic eczematous lesions and skin barrier dysfunction. AD develops from a complex interplay between genetic, environmental, immunologic factors lead multiple changes of immune system to eczematous and itchy lesion. Resveratrol is a natural polyphenol found in various types of fruits and vegetables, mainly found in red grapes and berries. Several studies indicated that bioactivities of resveratrol have anticancer, antioxidant, antiangiogenic and anti-inflammatory effect. Resveratrol-enriched Rice (RR) was developed using genetic engineering technique and contains high level of the resveratrol, might have biological effects synergistically similar to each resveratrol or normal rice alone in skin disorder. Previous study has already shown RR might regulate metabolic syndrome and related disease such as skin pigmentation with UVB exposure. Furthermore, each resveratrol and rice had anti-inflammation and improving skin condition, we expected that RR might be effective treatment for pruritic skin disease such as AD. We evaluated the effect of RR on pruritic skin inflammation in AD-like skin lesions using DNCB-induced NC/Nga mice and 3D skin model. RR significantly reduced scratching frequency, also inhibited increased dermatitis score, TEWL and improved skin hydration. Both level of IL-31 and serum IgE production were significantly reduced by treatment of RR. Furthermore, RR treatment suppressed the secretion of pro-inflammatory cytokines such as IL-6 in keratinocytes and 3D skin model. Therefore, RR may have potential effects as treatment for improving epidermal skin barrier function and modulated AD disease severity.

Biography

Minchoel Kang is currently a Master's student in College of Pharmacy at Gachon University, South Korea. He has been investigating the underlying mechanism of the development of atopic dermatitis. Especially, he is interested in the identification of natural products that regulate skin inflammation, hoping that his efforts will contribute to drug development for patients suffering from dermatitis.

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