

19<sup>th</sup> World

# DERMATOLOGY CONGRESS

May 07-08, 2018 Tokyo, Japan

## Anti-Inflammatory effects of Tetrahydrocurcumin and calcium mineral crystalline: *in vitro* and *in vivo* study

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**C**urcuma longa (Turmeric) has been used commonly as a spice, food additive, and an herbal medicine worldwide. This study aimed to investigate potential anti-inflammatory effect of Tetrahydrocurcumin (THC, extracted from Curcuma longa) with calcium mineral crystalline as vehicle. The THC assisted formation of biomineralized calcium mineral (THC & calcium mineral Complex) were synthesized via microemulsion. The potential anti-inflammatory effect of THC & calcium mineral Complex were examined by *in vitro* experiments. More specifically, THC & calcium mineral Complex decreased the expression levels of inflammatory effect, such as NO, MTT and PGE2 ELISA assay in Mouse macrophage. In addition, THC & calcium mineral Complex decreased the expression levels of inflammatory genes, such as cyclooxygenase-2 (COX-2), and interleukin-1- $\alpha$  (IL-1 $\alpha$ ) in keratinocytes. Clinical studies further suggested that treatment with formulations containing THC & calcium mineral Complex confers anti-inflammatory benefits. In the clinical study, the stable cream of water-in-oil emulsion containing the Complex improved human patch test, skin erythema value, and brightness significantly. Based on these results, we suggest that THC & calcium mineral Complex may be introduced as a possible anti-inflammatory agent and could be applicable to cosmetics as a functional (Useful) cosmetic ingredient.

### Biography

Si Jun Park is currently working as an Senior researcher /Ph D in the R&D Center, ACT Co., Ltd., Republic of Korea. His research interest includes anti-aging effect, atopic dermatitis and treatment with calcium mineral particles as skin delivery system.

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