



PIGMENTATION

## **BROCCOLI FLOWER EXTRACT IS A NEW TOPICAL SKIN LIGHTENING AGENT AGAINST MELASMA**

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**Background:** Melasma is an acquired hypermelanosis that occurs on exposed areas, most often on the face. Hydroquinone (HQ) has been used to treat hyperpigmentation, including melasma. Greater understanding of the pathogenesis of melasma has given way to pharmacology agents especially those of botanical origin. Broccoli flower extracts (BFE), which is rich of antioxidants, is a promising agent against melasma. It consists of flavonoids, vitamin C, E, A, niacinamide, glutathione, etc which are known to have skin lightening effect and makes it as an alternative or adjuvant therapy to the standard reference treatment of HQ.

**Objectives:** To compare the efficacy and safety of BFE 3% with HQ 4% in the management of melasma.

**Materials and methods:** This study was a randomized, double-blind, controlled clinical trial. BFE is produced from the Laboratory of Pharmacy, University of Sumatera Utara, Indonesia. Forty-three subjects with epidermal melasma recruited to compare BFE 3% cream, with HQ 4% cream (control group) applied once daily at night for 8 weeks. Changes in pigmentation were measured every two weeks using the Melasma Area Severity Index (MASI). Adverse events were noted on every visit. Patient and global investigator evaluations were performed at the end of the study.

**Results:** The result of paired t-test showed that there was a decrease of MASI score after treatment in the control group ( $p < 0,05$ ), as well as in BFE group ( $p < 0.05$ ). T-independent test results showed no difference in MASI scores between BFE and the control group before observation ( $p > 0,05$ ), and at the end of the study ( $p > 0.05$ ). There were no adverse effects reported in both group.

**Conclusions:** BFE 3% cream is a safe and effective skin-lightening agent for melasma and is comparable in efficacy and safety with HQ 4% cream.

