ABSTRACT

THE EFFECT OF ADDITION OF HYALURONATE ACID ON THE EFFECTIVENESS, IRITABILITY AND STABILITY OF AMNIOTIC MEMBRANE STEM CELL OF METABOLIT PRODUCTS (AMSC-MP) AS ANTI AGING GEL

RINA MUTYA SUZLIANA

Skin aging is a complex biological process caused by intrinsic and extrinsic factors. UV exposure is one of the main sources of skin damage known as *photoaging*. Various therapies used to reduce and eliminate the symptoms of aging and the one of the popular active ingredients used is *Amniotic Membrane Stem Cell Metabolite Products* (AMSC-MP). AMSC-MP contains growth factors and cytokines that can induce fibroblast migration and collagen production. AMSC-MP has several drawbacks for formulation in topical preparations. This causes AMSC-MP to require the good formulation to obtain products with good bioavailability. In photoaging skin, the amount of hyaluronic acid is decrease, causing a lack of ability to retain water, which causes skin to hydration, wrinkling and changes in elasticity. In addition to hyaluronic acid, AMSC-MP as a macromolecule requires a special enhancer to help its penetration, that is SPACE Peptide.

The research compared the effectiveness of antiaging, irritability and stability of AMSC-MP gel with different of Hyaluronic Acid (HA) concentration. The formulations of F_I (AMSC 0.08%; without SPACE Peptide and without HA), F_{II} (AMSC-MP 0.08%;SPACE Peptide 0.016% and without HA), F_{III} (AMSC-MP 0.08%; *SPACE Peptide* 0.016% and HA 0.01%), F_{IV} (AMSC 0.08%; SPACE Peptide 0.016% and HA 0.02%) and F_V (AMSC-MP , 08%; SPACE Peptide 0.016% and HA 0.04%). Hyaluronic acid gel characterization test results obtained pH 5,26-5,37 and spreadibility of 6,13 – 6,50 ± 0.02. That is according to the required gel preparation stadards for pH 4,5-6,5 and spreadibility required 5-7 cm.

effectiveness test conducted by back skin of mice. The skin penetration test results showed that the formula with the addition of SPACE Peptide can penetrate the skin well and the AMSC-MP gel with more hyaluronic acid has the ability to penetrate the skin better. The results of the collagen density test showed a significant difference between the UV treatment with F_V (AMSC 0.08%; SPACE Peptide 0.016% and HA 0.04%) and The result of the amount of fibroblasts showed significant differences in F_{IV} (AMSC 0.08%; SPACE Peptide 0.016% and HA 0.02 %) and F_V (AMSC 0.08%; HA 0.04% and SPACE Peptide 0.016%). The results of irritation test on hispatology preparations showed that there was no significant difference in the irritation score of AMSC-MP HA gel. The physical stability test results showed that the AMSC-MP HA gel was stable during 28 days of storage but chemically less stable of TGF β during 21 days storage.

Keywords : *Amniotic Membran Stem Cell* Metabolit Product (AMSC-MP), Hyaluronic Acid, *SPACE Peptide,* Antiaging,Effectivity, Collagen, Fibroblast.