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Design, development and optimization of a new dimethicone-based cream containing grape extract

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ne of the main subsidizing factors to the rising healthcare costs are related to the design and development of visionary pharmaceutical products. As a consequence, healthcare authorities have identified herbal preventive and therapeutic options as possible alternative strategies. In the developing world, there is an urgent need for the pharmaceutical industry field to invest more time and resources in the research and development of complementary and alternative medicines. Recently, we have developed an innovative phyto-based formulation for topical application and determine its thermal stability chronically. Thereby, a cream of waterin-oil type emulsion was prepared and implemented or not (placebo aka base) with Muscat hamburg black grape extract (active formulation). M hamburg-based cream was first mixed with the emulsifier (i.e. Abile EM90° aka Dimethicone) and compared with a placebo. Successful formulations were selected based on their ability to remain significantly (p<0.05) stable during a pre-determined period when stored at different temperatures (i.e. 8°C, 25°C, 40°C±75% relative humidity). Different physicochemical parameters like eventual changes in color, centrifugation, phase separation, liquefaction, conductivity, viscosity, and pH were assessed immediately after preparation (time 0) and at various time points (i.e., 12 hours, 24 hours, 36 hours, 48 hours, 72 hours, 7th day, 14th day, 21st day and 28th day). For viscosity studies, we extended the analysis to 90 days. We noticed from our experimental conditions and our comparative analyses the following: (i) unchanged organoleptic properties in terms of appearance, color and odor; (ii) unchanged properties after centrifugation and phase separation, and in terms of electrical conductivity, liquefaction, or viscosity. Importantly, we showed that both placebo and active formulation had insignificant mean pH (5.12±0.43 versus 5.04±0.39, p>0.05) when all respective samples were assessed. In spite of a progressive time-dependent and temperature-independent decline of the mean pH in both placebo and active formulation, the mean pH of both emulsions fit the acceptable range of dermal pH (i.e. 4.5-6.5) for 21 days. Taken together, we concluded that our newly developed dimethicone based cream containing Muscat hamburg extract was satisfactory and the promising results could help to manufacture a subsequent topical semi-solid dosage form for various skin ailments.

Biography

Farid Menaa is a renowned multidisciplinar professional with expertise in biology, medicine, chemistry, pharmacy and nanomedicine. He was the R&D head and advisor of Fluorotronics, Inc., CA, USA, a premier company in fluorine chemistry and nanotechnology, where he co-pioneered the Spectro-Fluor technology, also known as Carbone-Fluorine Spectroscopy, for biomedical and pharmaceutical applications. Besides, he assumed different academic and industrial functions in various countries and prestigious organizations. He is member of several prestigious scientific and medical societies. He serves the community as editor and reviewer for many esteemed journals including in pharmaceutical sciences. He also organizes scientific events, teaches and is currently an international consulting expert in integrative, regenerative, personalized and translational green medicine. He earned several awards for his achievements and holds dozen of articles, often as first author and/or as project coordinator. He cooperates with various organizations worldwide to implement more efficient and safer theranostic options.

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