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ANTI-AGING EFFECT OF THE FORMULATED AQUEOUS CREAM CONTAINING *HIBISCUS SABDARIFFA* L. EXTRACT

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TABLE OF CONTENTS

ABSTRACT

Skin aging is a complex biological process, which occurs when there is an appearance of a wrinkle on the skin and the reduction of skin elasticity. Intrinsic and extrinsic factors contribute to the aging activity. Intrinsic aging process includes the loss of skin elasticity and collagen while extrinsic aging process affects the dermis where there is a degradation of collagen and elastic fibres due to the exposure of solar radiation or UV. There are a lot of cosmetic products claiming to have anti-aging effect but the cost is expensive. The product formulation needs to aim penetration of active ingredients to the dermal area where collagen and elastic fibre are being produced. The extract of *Hibiscus sabdariffa* L. has a potential in contributing to anti-aging activity by its chemical constituent such as anthocyanins, flavonoids and ascorbic acid. It is also a less costly ingredient as it can be obtained locally. Three cream formulations containing different concentrations of extract were produced. The physical characterisation studies were performed. These include stability of the freshly prepared aqueous cream, pH, texture and particle size. These were compared with a commercial formulation. In order to evaluate the effectiveness of anti-aging activity of the extract, skin elasticity was measured using Cutometer Dual MPA580 and VisioscanVC98. All results were analysed statistically using SPSS to see the significance difference. From the results obtained, Formulation B which consists of 2%w/w *Hibiscus sabdariffa*L. Extract showed reduced wrinkle appearance and an increase in skin elasticity.

CHAPTER ONE

INTRODUCTION

1.1 Background of study

Skin aging is a complex biological process influenced by a combination of intrinsic (genetic, cellular metabolism, hormone and metabolic processes) and extrinsic (chronic light exposure, pollution, ionising radiation, chemicals, toxin) factors (Ganceviciene, Liakou, Theodoridis, Makrantonaki, & Zouboulis, 2012). These factors in combination lead to the alteration of cumulative structural physiological and progressive changes in each skin layer as well as changes in skin appearance, especially on the sun-exposed skin areas (Ganceviciene et al., 2012). Intrinsic aging process includes the loss of skin elasticity and collagen, along with fat atrophy. Extrinsic factor damages the dermis, affecting collagen and elastic fibres when exposed to solar radiation (Honigman & Castle, 2006). Skin is the largest organ in a human body. According to Tortora and Derrickson (2011) skin consists of three layers which are the epidermis, dermis and subcutaneous layer. Dermis is composed of dense irregular connective tissue embedding the collagen and the elastic fibres. According to Tortora and Derrickson (2011) collagen and elastic fibres are produced by fibroblast cells. To attain a localised effect, the route of administration for the drug to the skin should be via topical application (Pawar, Patil, Sadgir, & Wankhede, 2014) . Semisolid dosage forms such as creams, ointments and gels