

UNIVERSITI TEKNOLOGI MARA

**MOISTURISING EFFECTS OF WATER
SOLUBLE CHITOSAN BASED VITAMIN-E
CREAM**

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ABSTRACT

Dry skin had been the most frequent and exacerbating dermatological problem. There are various types of moisturisers which are commercially available and have been proven efficacious due to their good moisturising benefits towards dry skin. Vitamin E is one of them which had been used since long time as a moisturising cream. Chitosan has also been well-studied for its strong moisturising properties towards dry skin problem. Thus, the present study was aimed to evaluate the significance of co-administration of HA and CS to improve hydration level of the skin by synergistic action. This study was conducted on six volunteers (n=6) in which test cream (water soluble chitosan (WSC)-based vitamin E cream) was applied and evaluated compared with commercial vitamin E cream as positive control. The cosmetic effect of tested formulations was investigated by evaluating hydration level, erythema intensity, transepidermal water loss (TEWL) and the sebum contents of the skin. Resulting data revealed that WSC-based vitamin E cream showed higher increase in the hydration level, which was from 56 to 88 and sebum contents was 198 and significant reduction in the TEWL from 14.3 to 9.8 and erythema intensity from 368 to 243 compared to the positive control groups. In conclusion, we anticipate that CS based vitamin E cream can be a promising alternative therapy for the treatment of xerosis.

CHAPTER 1

INTRODUCTION

1.1 Background

Xeroderma or xerodermia (also known as xerosis), is a pathologic condition characterised by visible scaly appearance, itching and cracking of skin, which in most cases can safely be treated with emollients or moisturisers. It occurs most commonly on the scalp, lower legs, arms, hands, knuckles, sides of the abdomen, and the thighs. Most common symptoms associated with this skin condition include the scaling, visible peeling of the outer skin layer, itching and skin cracking (Rapini *et al.*, 2007). It happens more often in winter where the cold air outside and the hot air inside creates a low relative humidity which causes the skin to lose moisture and get cracks and peel. Other than that, frequent bathing or hand washing especially by using harsh soaps can also contribute to the development of this severe skin dryness. Xeroderma can also be caused by a deficiency of vitamin A, vitamin D, or in response of systemic illness, severe sunburn, or some medications. Detergents such as washing powder and dishwashing liquid can also predispose the development of this skin problem.