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RESEARCH ARTICLES

Bandage Effect Antiaging Cream Channa Striata Extract (Snakehead Fish) With Tretinoin Cream 0.1% Against Photoaging

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Abstract: Photoaging is a skin aging process that occurs due to sun exposure causing damage to the skin. From the results of the study, it was also found that the most visible signs of premature aging were not fine lines or wrinkles, but dull skin with a percentage of 53.30%. Snakehead fish has a protein level in 100 grams of fish meat reaching 25.2 grams. The albumin level of snakehead fish is quite high up to 6.22%, and the zinc mineral content from snakehead fish reaches 1.74 mg/100 grams, with high levels of protein and albumin snakehead fish useful as photoaging therapy. This study aims to find out whether there is a difference in effect between the use of Channa striata (snakehead fish) extract cream and 0.1% tretinoin cream as photoaging therapy. This type of study is a randomized control trial using 2 groups, namely the group with the administration of snakehead fish cream test material and the group with the 0.1% tretinoin cream test material for 30 days with a total sample of 96 people, each sample will be observed at the beginning and end of the treatment using the Glombau scale. Based on the results of the study, there was no difference in effectiveness between the use of Channa Striata (snakehead fish) extract cream and 0.1% tretinoin cream on photoaging (p=1.00). There was no comparison of effectiveness between the use of Channa Striata (snakehead fish) extract cream and 0.1% tretinoin cream on photoaging.

Keywords: Snakehead fish cream, tretinoin cream

INTRODUCTION

Photoaging is a skin aging process that occurs due to sun exposure so that it causes damage to the skin. Skin aging is a physiological condition in humans, but it can

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cause aesthetically disturbing problems and skin health disorders.[1]

A survey conducted by skin care brand Olay beirsama one of the online media, had 778 reviews. From the results of the research, it was also found that the most visible sign of early childhood was not fine lines or wrinkles, but dull skin with a preiseintasei as much as 53.30%. Even though there are signs of early aging, it is clear that there are still many people who are overwhelmed by antiaging treatment.

Another survey conducted by Taylor Neilson Sofre 1,800 women aged 20-39 years in Asia (India, Korea, the Philippines, Thailand) reported that 1 in 3 women in Asia only use cosmetic surgery , even if they are pregnant. There are also signs of addiction.[2]

Indonesia is one of the tropical countries with exposure to the sun 's ultraviolet (UV) rays throughout so that the Indonesian population is resilient to the appearance of the skin, especially in the case of eccentric skin due to exposure to UV rays for a long period of time.[3]

In a facial dermoscopy examination involving 155 women in the city of Meidan in 2020, data showed that Javanese eitnis were the majority in this study as a total of 47 people with 30.3% of the average number of women in the study 3rd degree on the Glogau scale. Keimudian followed by batak eitnis with a total of 26 people with peirseintasei 16.8% with an average of 2 degree of education , followed by a total of 16 people with a peirseintasei of 10.3% with a 2nd degree education, Chinese Eitnis A total of 14 people with Peirseintasei 9% have a Degree of Divinity 3, A number of 12 people with a Peirseintasei 7.7% have a Degree of Divinity 2, followed by A total of 12 people with a peirseintasei 7.7% have a degree 3. For the rest of Meilayu, Aceih, Nias, and India as many as 28 people with a percentage of 18% with an average severity of 2 degrees.[4]

Extrinsic and intrinsic aging have different etiologies and influences, both cause the same damage to the connective tissue in the dermis layer in the form of biochemical reactions in the organizational structure of the extracellular matrix which is mainly composed of elastin and collagen fibers.

Collagen is a major component of the skin's crust, which contributes up to 70% of the skin's mass of the skin, so its damage is a major cause of skin aging in the form of wrinkles, loss of elasticity, and sagging skin.[5]

In addition, the protected old skin deirmiis showed not only fewer mast cells and fibroblasts than the protected young skin, but also cleared collagen fibers and elastic fiber. The production of type I procollagen in aging human skin will be reduced due to low reigulation of TGF-b signaling and its connective tissue growth factor, which is thought to regulate collagen expression. In intrinsically aged skin, not only the extracellular matrix components will deteriorate, but elastin, fibrillin,

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collagen, and oligosaccharides will deteriorate, which will affect the skin's ability to retain water on the skin.[6,7]

Tretinoin, a first-generation nonaromatic retinoid, has been approved for use as an antiagiing at 0.05% concentrations in the United States. It has been proven to reduce the signs of premature skin aging caused by UV, such as loss of skin elasticity, wrinkles, and pigmentation. Polypeptides or oligopeptides that are composed of amino acids and will be able to mimic the sequence of peptide molecules such as collagen or elastin.

In topical application, polypeptides have the performance of stimulating collagen synthesis and will activate skin metabolism.[10]

Channa striiata (snakehead fish) is a freshwater fish of the genus Channa that is widely found in public waters. Snakehead fish has protein compounds and several minerals that are very important for the bod. Snakehead fish has a protein content in 100 grams of fish meat reaching 25.2 grams, higher than other fish.[11] The albumin level of snakehead fish is quite high up to 6.22%, and the zinc mineral content from snakehead fish meat reaches 1.74 mg/100 grams.[12] With high levels of protein and albumin snakehead fish, it will be useful as photoaging therapy.

Previously, this research had never been carried out, therefore I felt the need to conduct a study on comparing the effects of using Channa striata (snakehead fish) extract cream with 0.1% tretinoin cream as photoaging therapy.

From this background, the formulation of the problem I took was how to compare the antiaging effect between the use of channa striata (snakehead fish) extract cream and 0.1% tretinoin cream on photoaging.

METHOD

This type of study is a randomized control trial with a sampling technique that is non-probability sampling, namely consecutive sampling using 2 groups, namely the group with the administration of Channa Striata extract cream (snakehead fish) and the group with the test material of 0.1% tretinoin cream.

RESULT

Table 1. Mc Nemar Test Results

Cream	Before	After	Sig.
Snakehead Fish	48	2	
Tretinoin	48	2	1.00
Total	**96**	**4**	

Based on the table above, information was obtained that from 96 respondents obtained results before the application of snakehead fish extract cream, there were 48 respondents with photoaging, while after the administration of snakehead fish extract cream for a month, there were 2 respondents who experienced photoaging improvement. On the other hand, when giving 0.1% tretinoin cream 48 respondents with

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photoaging, while after giving 0.1% tretinoin cream, there were 2 respondents who experienced photoaging improvements.

In addition, information was obtained that the value of sig. of 1.00, the value is < 0.05 then H0 is rejected and H1 is accepted which means that there is no difference in the photoaging results of the administration of Channa striata (snakehead fish) extract cream with tretinoin cream 0.1.

DISCUSSION

Effectiveness of Channa Striata (Snakehead Fish) Cream on photoaging Based on the results of research and analysis, the administration of Channa Striata (snakehead fish) extract cream has been proven to reduce photoaging.Channa Striata (snakehead fish) is a type of freshwater fish that is known to contain a fairly high protein albumin. Natural snakehead fish extract and cultured snakehead fish contain albumin ranging from 63-107 mg/g and 63.44-66.74 mg/g meat.

Albumin is the highest type of plasma protein classified as a natural polymer that has the ability to improve the physico-chemical characteristics of products.

Albumin is a natural polymer that is also used in topical products. Polymers act as emulsifiers, stabilizers, or thickeners.

Albumin extract is considered the right choice as an example of an alternative form of protein-based cosmetic products.

The advantage of the application of protein in cosmetic products is that it increases skin moisture.

Protein also plays a role in thickening the skin layer, increasing the skin's water content, and reducing skin wrinkles.

Cream products with albumin extract concentration treatment exert an influence on the physico-chemical characteristics of the product.

Albumin is one of the thickening materials obtained from animal protein derivatives. The addition of albumin to cosmetic products can improve the stability and physical properties of the product due to increased cross-bonding in the polymer tissue that is formed. The elevation causes the glass to become stronger and prevents water from migrating out of the product. The statement explains that snakehead fish albumin extract can affect the physico-chemical characteristics of the product which has an impact on the fading of wrinkles and as an antiagiing. The administration of snakehead fish extract can increase a dozen nitrogens in a positive direction. The dozens of nitrogens show a reduction in protein catabolism due to photoaging where proteins are used to speed up healing and replace cells damaged by burns, so that with a reduction in protein catabolism, it is hoped that a person's skin can heal faster.

Optimal nutrition to the skin combined with vitamins A, B, and C as well as Zinc and Selenium supplementation as well as the administration of snakehead fish extract can

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accelerate the healing process due to photoaging and inhibit the infection process and increase albumin levels in the skin.

Effectiveness of Tretinoin Cream 0.1% on photoaging The results of the study also showed that in addition to the administration of Channa Striata (snakehead fish) extract cream, the administration of trethionoin 0.1% was also proven to reduce photoaging. Tretinoin is the fourth generation (pyranones) of retinoids called seletinoid G. There are currently seven topical retinoid preparations, namely. tretinoin, adapalen, tazaroten, isotretinoin topikal, motretinid, retinaldehid, dan β-retinoil glukuronida. Tretinoin penetrates into the skin and accumulates in the upper dermis with very small absorption into blood vessels or lymphatic vessels. Long-term use of tretinoin 0.1%-0.2% showed very little or no increase in systemic tretinoin levels and minimal changes were not associated with teratogenicit. Tretinoin 0.05% absorption only ranges from 1.38%-2.13% and does not cause an increase in endogenous tretinoin levels

The results of this study are in line with the research conducted by Sitohang et al, (2022). In his research it was known that topical tretinoin is safe and well tolerated on all skin types.

Topical tretinoin dosage varies from 0.025% to 5% while the duration of retinal treatment ranges from 3 months to 24 months.

With regard to efficacy, all studies consistently reported that topical tretinoin was efficacious in improving the clinical appearance of photoaging in terms of wrinkles, mottled hyperpigmentation, pale skin, and lentigin from 1 month and persisted after 24 months

The bonds of retinoic acid (tretinoin) with the core receptors, namely Retinoid acid receptors (RAR) and retinoid X receptors (RXR), form a heterodimer complex. The complex then binds to specific DNA chains to affect transcription, thereby causing an increase or decrease in the expression of specific enzymes/proteins.

Using genomic methodology, it was possible to look at more than 1200 genes that are significantly influenced by tretinoin for skin aging therapy.

These changes cause normalization of skin conditions that change due to aging (either induced by chronological factors or by environmental influences such as chronic sun exposure).

The antiaging effect of tretinoin occurs through thickening the skin so as to reduce the appearance of real lines or wrinkles, namely by increasing proliferation and increasing the production of epidermal glycosaminoglycan (GAG) basic substances that are able to bind water, increase hydration and thickness of the epidermis), and increase the production of extracellular matrix components of the dermis such as collagen (increasing the thickness of the dermis).

In addition, tretinoin also has an inhibitory effect on other tissue components.

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Tretinoin plays an important role in repairing dispigmentation due to UV rays. Treitinoin has been shown to improve dispigmentation by inhibiting tyrosinase, reducing melanosomal transfer, and increasing the release of melanin-containing keratinocytes.

The use of tretinoin during 4-6 weeks of therapy can improve mottled hyperpigmentation, fine wrinkles, elasticity, hydration, and collagen deposition.

Compaction of the stratum corneum and the disappearance of atypia and dysplasia occur only after 1 month of tretinoin administration, the jam the condition of the skin continues to improve over time even after treatment is stopped. Clinically significant improvements in the clinical signs of photoaging showed an increase in the level of procollagen formation after long-term treatment with tretinoin cream.

Comparison of the Effectiveness of Snakehead Fish Cream with Tretinoin Cream on photoaging

Based on the theory that has been described, to treat or reduce photoaging, you can use creams containing Channa Striata extract (snakehead fish) or creams containing 0.1% tretinoin.

This is because both extracts have been proven to reduce photoaging and there is no difference in effectiveness between the two ingredients of Channa Striata (snakehead fish) extract and tretinoin cream on the skin.

CONCLUSION

Based on the analysis that has been carried out in this study, the conclusions that can be drawn are:

1 There was no difference in effectiveness between the two content of Channa Striata (snakehead fish) extract and 0.1% tretinoin on photoaging skin.
2 The characteristics of respondents who experienced photoaging based on gender were with the majority of women with a total of 72 respondents (75%). The characteristics of the respondents based on age are with the majority aged between 30-40 years old with a total of 34 respondents (35.4%).
3 Based on research that has been conducted, to treat or reduce photoaging, you can use creams that contain Channa Striata extract (snakehead fish) or creams that contain 0.1% tretinoin.

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