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Herbal Skin Magic: Crafting Vanishing Cream with Nature's Best

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Abstract: *In recent years, there has been a paradigm shift in the skincare industry towards the use of natural ingredients, driven by consumer demand for safer, eco-friendly alternatives. This research paper explores the formulation and evaluation of a novel vanishing cream enriched with botanical extracts renowned for their skincare benefits. Moringa oleifera, known for its antioxidant properties and rich nutrient profile, serves as a foundational ingredient, complemented by turmeric, celebrated for its anti-inflammatory and brightening effects. Aloe vera, prized for its soothing and hydrating properties, joins the blend alongside ginger, valued for its toning and revitalizing qualities. Lemon oil, renowned for its astringent and clarifying properties, completes the botanical ensemble.*

The vanishing cream formulation process involves meticulous optimization to achieve the desired texture, stability, and efficacy. Each ingredient is carefully selected and balanced to synergistically enhance the overall performance of the cream. Physicochemical analysis, encompassing parameters such as pH, viscosity, and spreadability, provides insights into the cream's quality attributes and consumer acceptability.

Furthermore, the formulated vanishing cream undergoes comprehensive evaluation through in vitro and in vivo studies to assess its skincare efficacy. In vitro assays investigate the cream's ability to hydrate the skin, control sebum production, and neutralize free radicals. In vivo studies involve human volunteers to assess the cream's performance in real-world conditions, including its moisturizing effect, sebum absorption, and overall skin appearance.

The results of the research demonstrate the potential of the formulated vanishing cream to address key skincare concerns, including hydration, oiliness, and overall skin health. By harnessing the power of natural ingredients, the cream offers consumers a safe, effective, and sustainable solution for their skincare needs. The findings of this research contribute to the growing body of scientific literature on natural skincare formulations and highlight the importance of botanicals in cosmetic innovation

Keywords: dry skin

I. INTRODUCTION

Approximately every human being faces dry skin during life. There are occasional episodes in many peoples, and chronic difficulty like xerosis, that is, itching, happens in some people. Dry skin represents dry, scaly or rough look with the possible presence of cracking, reddening or itching and less flexibility than normal skin. Human skin retains its appearance and function by equilibrium between the water content of stratum corneum and surface lipids.

The skin acts has a distinctive barrier to the entrance of hazardous materials and prevents loss of water . Andquot; bricks and mortarquot; model supports that it functions as an active membrane. This protective function of the skin is disrupted by various external factors such as ultraviolet radiation, moisture and hormones. Many soaps, topical irritants and detergents can also disrupt the skin's surface lipids. Therefore, dry skin is observed especially in atopic dermatitis. The water content of a healthy stratum corneum is naturally 10-20%. Ultraviolet radiation triggers a number of skin diseases such as wrinkles, scaling, dryness, mottled pigmentation disorders, including photoaging, hypopigmentation, hyperpigmentation and skin cancer; although many environmental and genetic factors contribute to the development of various skin diseases.

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Reactive oxygen species (ROS) are produced, which can mediate damage to cellular proteins, lipids, and saccharides, and eventually the development of various skin diseases. UVA (ultraviolet A) can cause structural damage to DNA, weaken the immune system and cause cancer. UVB (ultraviolet B) causes direct and indirect unwanted biological consequences: activation of ornithine decarboxylase activity, production of pyrimidine photoproducts, stimulation of DNA synthesis, arrest of cell cycle growth, generation of free radicals in the skin, photoaging and photocarcinogenesis. This provokes the production of free radicals and significantly reduces the amount of antioxidants in the skin, which weakens the ability of the skin to protect itself against free radicals that occur after exposure to sunlight (Alena and Daniela, 2006; Masamitsu et al., 2000). It has been observed that the topical application of antioxidants can neutralize some of the free radicals produced and thus reduce or prevent the destruction of the protective function of the skin, dryness and other similar problems by absorbing UV radiation and acting as a sunscreen (Nichols and Katiyar, 2010). The antioxidant activity of herbal phenolics, namely phenolic acids and flavonoids has attained considerable attention.

Moisturizers containing antioxidants and phenolic compounds are the bastion of management for dry skin, daily safeguarding of normal skin, and adjunctive therapy related many skin diseases (Dal'Belo et al., 2006). However, the moisturizing treatment engrosses:(1) enhance water content; (2) decrease TEWL; (3) refurbishing the skin barrier; and (4) reinstating the lipids'ability to attract, grasp and redistribute water (Flynn et al., 2001).

Moringa oleifera (Moringaceae) is well known as kelor, benzolive, marango, mlonge, mulangay, sohajana, saijhan, drumstick tree, nébéday and sajna. It is a pantropical specie (Iqbal and Bhanger, 2006). Bioactive compounds such as carotene, vitamin C, vitamin B, vitamin A, phonolics, caortenoids etc, have been reported. Its leaves are used as purgative, applied as poultice to sores, rubbed on the temples for headaches, used for piles, fevers, sore throat, bronchitis, eye and ear infections, scurvy and catarrh (Anwar et al., 2007). However, action of M. oleifera leaves as moisturizing effects is scarce.

Experimental research to assess the moisturizing effect of M. oleifera leaf extracts are mandatory. Objective methods are considered suitable to identify substances that promote skin moisture and to explain the mechanisms of action. These include non-invasive skin biotechnological techniques, which are often used because they allow evaluation of cosmetic products under real conditions of use.

II. MATERIAL METHOD

Plant Material

1. Moringa oleifera:

Moringa oleifera is a plant which could provide fitness benefits, such as lowering your danger of positive fitness situations like excessive blood pressure. Moringa oleifera is a plant that has been praised for its fitness advantages for heaps of years. It could be very wealthy in wholesome antioxidants and bioactive plant compounds.

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So far, scientists have simplest investigated a fragment of the various reputed fitness benefits. Moringa oleifera leaf extract typically contains various plant compounds, including antioxidants like quercetin and chlorogenic acid, as well as vitamins and minerals such as vitamin C, potassium, and calcium. Additionally, it may contain amino acids, beta-carotene, and other bioactive compounds with potential health benefits. Keep in mind that the specific composition can vary depending on factors like the plant's growth conditions and the extraction method used.

Moringa oleifera contains various nutrients and bioactive compounds, including vitamins, minerals, and antioxidants. Some key chemical constituents include:

1. Vitamins: Rich in nutrients A, C, and E.
2. Minerals: Contains significant amounts of calcium, potassium, and iron.
3. Proteins: Provides essential amino acids, making it a good protein source.
4. Antioxidants: Contains quercetin, chlorogenic acid, and beta-carotene, contributing to its antioxidant properties.
5. Phytochemicals: Includes isothiocyanates and glucosinolates, which may have health benefits.
6. Fatty Acids: Contains both saturated and unsaturated fatty acids.

These components contribute to the potential health benefits associated with Moringa oleifera consumption.

2. Turmeric:

Turmeric is a plant with a very long history, almost 4000 years ago. In Southeast Asia, turmeric is not only used as a main spice, but also as part of religious ceremonies. Due to its bright yellow color, turmeric is also known as "Indian saffron". Modern medicine has begun to realize its importance, as evidenced by the more than 3,000 publications on turmeric that have appeared in the last 25 years. This review will first discuss in vitro studies with turmeric, then animal studies, and finally human studies; the safety and efficacy of turmeric are still debated. The main bioactive compound in turmeric is curcumin, which is found in the rhizomes (roots) of the Curcuma Longa plant.

The plant also contains other beneficial compounds, such as turmeric essential oil. Turmeric extract usually comes from the rhizome of the turmeric plant (Curcuma longa). The active compound responsible for its medicinal properties is curcumin. The extraction process involves extracting the curcuminoids from the rhizome. Other plant materials may include essential oils, fiber and various nutrients that occur naturally in turmeric. Turmeric contains various chemical compounds, the best known of which is curcumin.

Other ingredients include essential oils (turmerone, atlantone and gingerene), sugars, proteins and resins. These components contribute to the taste, color and potential health benefits of turmeric.

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3. Aloe vera:

Aloe vera, a succulent plant, has a rich history of use that goes back centuries. The ancient Egyptians called it the "plant of immortality; and used it for various health and beauty purposes. Over time, its healing properties have been adopted by different cultures. The gel inside the aloe vera leaves is known for its soothing and healing properties and is often used to treat skin conditions, burns and wounds. Today, Aloe Vera is a common ingredient in skin care and health products, underscoring its continuing importance in herbal and naturopathic medicine.

Aloe is a cactus-like plant that grows in hot, dry climates. It is cultivated in subtropical regions around the world, including the southern border regions of Texas, New Mexico, Arizona, and California.

Historically, aloe has been used for skin conditions and is thought to treat baldness and promote wound healing. Aloe is used topically (carried out to the skin) and orally. Topical use of aloe is promoted in the treatment of acne, lichen planus (a very itchy rash on the skin or mouth), oral submucosal fibrosis, burning mouth syndrome, burns and radiation skin toxicity. Oral use of aloe is promoted for weight loss, diabetes, hepatitis and inflammatory bowel disease (a group of diseases caused by inflammation of the intestines that includes Crohn's disease and ulcerative colitis).

Aloe vera leaves contain a gel-like substance that is often used for various skin care purposes. The gel is rich in vitamins, minerals, amino acids and antioxidants, which contribute to its soothing and moisturizing properties. Aloe Vera contains various chemical components such as polysaccharides, glycoproteins, vitamins, minerals, enzymes and anthraquinones. These compounds contribute to its healing properties, such as anti-inflammatory and skin soothing effects.

4.Ginger:

Scientifically known as Zingiber officinale, ginger has a rich history dating back thousands of years. The most commonly used part of the ginger plant is the rhizome, which is the underground stem. In various cultures, ginger has been valued not only for its culinary uses, but also for its medicinal properties.

Historically, ginger originated in Southeast Asia and was later cultivated in India and China. It played an important role in ancient trade routes, including the Silk Road, spreading its use around the world. Gingerand#039's distinctive flavor has made it a popular spice in various cuisines, and it has also been valued for its perceived health benefits. In addition to its culinary uses, ginger has a long history of medicinal applications. It has been used in traditional medicine to relieve indigestion, nausea and inflammation.

The aromatic and spicy properties of ginger have helped to incorporate ginger into teas, tonics and various medicines in different cultures. In general, the plant material, especially the rhizomes, was central to the historical importance of ginger, as well as a culinary spice and medicinal plant. Ginger contains various bioactive compounds such as gingerol, shogaol, paradol and zingerone. These ingredients contribute to its distinctive flavor and potential health benefits.

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5. Lemon oil –

It is used for a variety of skin conditions , including acne. When diluted and applied topically, lemon essential oil can kill bacteria that may get trapped in pores and cause breakouts. It can also clarify your skin, gently exfoliating dead skin cells that so often become trapped in hair follicle and pores.

Lemon oil can help refine the complexion, especially for oily skin types prone to large pores, as lemon has astringent properties

Methods:

To prepare a water extract of Moringa oleifera, follow these steps:

1. Harvesting: Obtain fresh Moringa leaves from a trusted source.
2. Cleaning: Wash the leaves thoroughly to remove any dirt or contaminants.
3. Drying: Allow the washed leaves to air-dry in a clean and shaded area to prevent the loss of nutrients. Ensure they are completely dry before proceeding.
4. Grinding: Once dried, grind the leaves into a fine powder using a mortar and pestle or a grinder.
5. Measuring: Measure the desired quantity of Moringa powder based on your intended use.

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6. Boiling Water: Boil water and let it cool slightly, ensuring it's hot enough to facilitate extraction.
7. Mixing: Add the Moringa powder to the hot water and stir thoroughly to create a mixture.
8. Steeping: Let the mixture steep for around 10-15 minutes to allow the water to extract the beneficial compounds from the Moringa.
9. Straining: After steeping, strain the mixture using a fine mesh strainer or cheesecloth to remove the solid particles, leaving only the water extract.
10. Storage: Store the Moringa water extract in a clean, airtight container in the refrigerator for short-term use or freeze for longer preservation.

To prepare turmeric extract in water, you can follow these steps:

1. Ingredients:
   - Turmeric powder
   - Water
2. Ratio:
   - Use about 1 to 2 teaspoons of turmeric powder per cup of water, depending on your preference for strength.
3. Method:
   - Boil the water in a saucepan.
   - Add the turmeric powder to the boiling water.
   - Reduce the heat and let it simmer for 10-15 minutes, stirring occasionally.
   - Allow the mixture to cool.
   - Strain the liquid to remove any remaining particles, leaving you with the turmeric extract.
4. Optional Additions:
   - You can enhance the flavor by adding a pinch of black pepper or a slice of ginger during the boiling process.

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To prepare aloe vera extract in water, follow these steps:

1. Harvesting Aloe Vera Gel:
- Cut a mature aloe vera leaf close to the base using a clean, sharp knife.
2. Cleaning the Gel:
  - Wash the cut leaf under running water to remove any dirt or debris.
3. Extracting Gel:
  - Place the leaf vertically to let the yellow latex drain out, as it can be irritating. You can also soak the cut leaf in water to allow the latex to drain.
4. Peeling and Collecting Gel:
  - Peel off the green skin using a knife or spoon to reveal the clear gel inside.
  - Collect the gel in a clean bowl.
5. Blending:
  - Use a blender to blend the gel until it becomes a smooth liquid.
6. Dilution with Water:
  - Mix the aloe vera gel with water in a ratio of 1:3 or adjust according to your preference for strength.
7. Stirring:
  - Stir the mixture well to ensure proper distribution.
8. Storage:
  - Store the aloe vera extract in a clean, airtight container in the refrigerator.

To prepare ginger extract in water, follow these steps:

1. Ingredients:
  - Fresh ginger root
  - Water
2. Wash and Peel:
  - Wash the ginger root thoroughly.
  - Peel the ginger using a knife or a spoon.

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3. Slice or Grate:
 - Slice or grate the peeled ginger. Smaller pieces will release more flavor.
4. Boil Water:
 - Boil the desired amount of water in a pot.
5. Add Ginger:
 - Add the sliced or grated ginger to the boiling water.
6. Simmer:
 - Reduce the heat and let the ginger simmer in the water for about 10-15 minutes.
7. Strain:
 - After simmering, strain the liquid to remove the ginger pieces.
8. Cool:
 - Allow the ginger extract to cool before using.
9. Store:
 - Store the ginger extract in a clean, airtight container in the refrigerator

Preparation of the Formulation

An active cream was prepared by an anionic hydrophilic colloid,(liquid paraffin) ,borax,methyl parabean ,beeswax, and moringa olifera leaves extract,turmeric extract, alove vera extract, ginger extract.

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Ingredients: -

1) liquid paraffin -10 ml
2) borax - 0.2gm
3) beeswax
4) methyl parabean - 0.02gm (preservative to prevent bacterial growth)
5) few drops of essential oil for fragrance (optional).

Instructions:

1. Heat water and oil in separate containers until they reach around 70-75°C.
2. In a heat-resistant bowl, combine the heated water and oil phases.
3. In another container, melt the emulsifying wax.
4. Add the melted wax to the water-oil mixture while stirring continuously.
5. Continue stirring until the cream begins to cool and emulsify.
6. Once cooled to around 40-45°C, add essential oil for fragrance if desired.
7. Finally, add the preservative according to its recommended usage.

III. EVALUATION TEST:

Sr. NO	TEST	OBSERVATION
	Colour	Pale Yellow
	Odour	Characteristics
	Consistency	Smooth
	pH	6.7
	Microbial Growth	No
	Solubility	Soluble in fix oil and soluble in water
	Washbality	Good
	Non irritancy	Not irritant
	Stability Study (25^{o}c And 37^{o})	Stable

APPLICATION:-

1) liquid paraffin: liquid paraffin used as a moisturizer to treat or prevent dry, rough, scaly, itchy skin and minor skin irritations. Helps to soften and moisturize the skin and reduce itching and smoothing.

2) beeswax: beeswax is used as a stiffening agent. Beeswax has skin softening properties and increases skin elasticity, helps reduce signs of aging. Beeswax is antibacterial, anti-allergic and kills bacteria..

3) Borax:- The use of borax in face cream is not recommended. Borax, also known as sodium borate, is a chemical compound that can irritate the skin, especially on the face. It is important to choose safe and well-researched skin care ingredients to avoid potential harm or side effects. When looking for a face cream, consider products with ingredients specially formulated for skin care and tested for safety.

4) Methylparaben:- Methylparaben is a commonly used preservative in cosmetics, including face creams, to prevent the growth of bacteria and mold. This helps to extend the validity of the product and maintain its effectiveness. However, care has been taken to ensure the safety of parabens, so it's important to check product labels and consult a dermatologist if you have specific skin concerns.

5) Moringa olivera:- Although Moringa oleifera leaves are rich in nutrients and antioxidants, their use in face creams has not been widely documented. It is important to note that skin care products contain different ingredients and processes to ensure safety and effectiveness. If you're considering Moringa skin care, consult a dermatologist or skin care professional for personalized advice and to make sure it's right for your skin type.

6) Turmeric:- Turmeric is believed to have anti-inflammatory and antioxidant properties, making it a popular ingredient in skin care. Some people use turmeric in face creams to lighten the skin, reduce redness, and treat certain skin conditions. However, it is important to be careful as turmeric can stain the skin and cause irritation in some

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people. Before trying a turmeric-based face cream, it is recommended to do a patch test to ensure compatibility with your skin. It is also recommended to consult a dermatologist for personal skin care advice.

7) Aloe vera:- Aloe vera is often used in face creams for its moisturizing and soothing properties. It can help hydrate the skin, reduce inflammation and make the skin smoother.

8) Ginger:- Ginger contains antioxidants. These molecules help control free radicals. which are compounds that can damage cells if they rise too high.

IV. RESULTS AND DISCUSSION

In this study, TEWL values increased after baseline at week 2 and then decreased at week 4. After the fourth week, TEWL was increased until the 10th week and then a slight decrease was observed after the 12th week. However, a continuous decrease in TEWL values was observed in the active cream until week 12 (Figure 1). Using the ANOVA test, it was found that the changes in TEWL produced by the active cream were significant and the base was insignificant in relation to time. When a paired sample t-test was used, it was found that the base and active creams showed significant differences in TEWL values, except at weeks 2 and 4, 6 and 8. However, hydration values increased after baseline at 2, 4, and 6 weeks, and values decreased at 8, 10, and 12 weeks. However, with the active cream, the skin moisture values were observed to continuously increase until week 12 (Figure 2). Using the ANOVA test, it was found that the changes in skin moisture values caused by the active emulsion cream were significant and the baseline values were insignificant in relation to time. When a paired sample t-test was used, it was found that there were significant differences in skin moisture values between the base and active creams, except at weeks 2 and 10. Quantification of biophysical parameters of transepidermal water loss (TEWL) is crucial for a comprehensive assessment of epidermal barrier status (Daleski et al., 2009). Changes in TEWL are related to the water-binding capacity of the earth's crust. In general, there is a correlation between hydration of the stratum corneum (SC) and TEWL values, so a lower TEWL (intact epidermal barrier function) corresponds to a normal hydration state of the stratum corneum (Daleski et al., 2009). A combination of TEWL and capacitance is suitable for assessing skin sensitivity (Wang et al., 2003). The decrease in TEWL in the active cream is due to the presence of antioxidants and phenolic compounds in the M. oleifera extract. Binding of water to frost can be compromised. In this case, it is useful to reduce transepidermal water loss by transferring it to occlusive membranes (Aburjai and Natsheh, 2003).

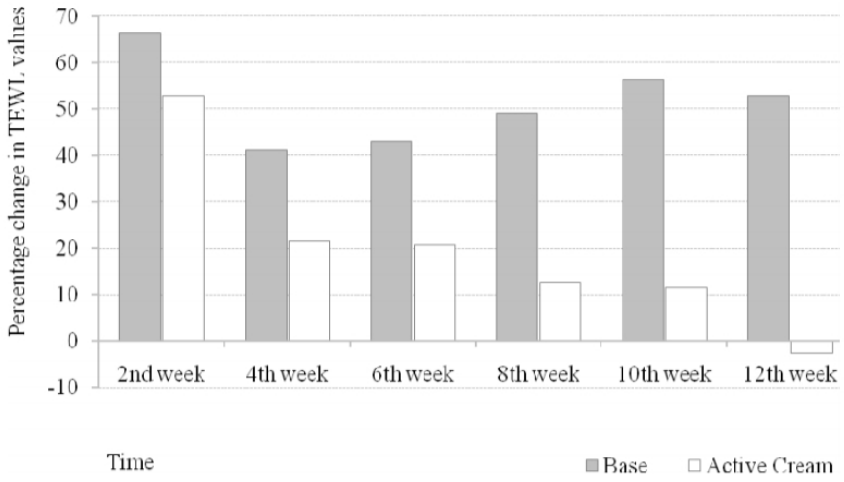

Figure 1. Percentage change in the TEWL values of volunteers after the application of base and active cream.

M. oleifera leaves have been reported to contain ascorbic acid (vitamin C) with an ascorbic acid content of 106.95 mg/100 g (Anwar et al., 2007; Singh et al., 2009). Recently, the function of ascorbic acid in stratum corneum lipid configuration has been revealed. Ascorbic acid concentrations of 0.4 to 1 mg/100 g wet tissue weight were observed throughout the skin region (Shapiro and Saliou, 2001). Ascorbate regulates epidermal lipid profiles (especially

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glycosphingolipids and ceramides) in regenerated epidermis. In addition, topically applied ascorbic acid has been shown to provide photoprotection and anti-inflammatory and UVB-induced immune responses (Shapiro and Saliou, 2001). In addition, a better skin moisturizing effect resulted in a reduction of TEWL induced by the active cream in volunteers. M. oleifera leaves are rich in phenolic compounds. The phenolic content of aqueous methanol extract of M. oleifera leaves is reported to be 12.2 ± 0.28 (GAE g/100 g DW) (Sultana et al., 2001). Phenolic compounds are currently being investigated for topical therapeutic use (Epstein, 2009). M. oleifera leaves contain quercetin-3-O-glucoside and quercetin-3-O-(6"-malonyl glucoside), smaller amounts of kaempferol-3-O-glucoside, kaempferol-3-O-(6"-malonyl) - glucoside, 3-caffeoylquinic acid and 5-caffeoylquinic acid (Bennet et al., 2003).

Other phenolic compounds which may collaborate in prevention UV radiation and dryness

Include:

Kaempferol-3-O-rhamnoside, kaempferol, syringic acid, gallic acid, rutin and quercetin-3-glucoside (Manguro and Lemmen, 2007). High-performance liquid chromatography (HPLC) analysis revealed the presence of phenolic acids (gallic, chloro, ellagic and ferulic) and flavonoids (kaempferol, quercetin and rutin) (Verma et al., 2009). HPLC and MS/MS analysis was performed and showed the presence of gallic acid, chlorogenic acid, ellagic acid, ferulic acid, kaempferol, quercetin and vanillin. LE (aqueous leaf extract) had higher total phenolics (105.04 mg bile acid equivalent (GAE)/g) and total flavonoids (31.28 mg quercetin equivalent (QE)/g) than other M.oleifera and showed better antioxidant activity (85.77%). .), antiradicals, reducing power (ascorbic acid equivalent (ASE)/ml), inhibition of lipid peroxidation, protein oxidation, OH-induced deoxyribose degradation, and superoxide anions and nitric oxide radicals (Singh et al., 2009; Nichols and Katriyar, 2010). Phenolic antioxidants present in M. oleifera leaves reduce free radical damage and thus prevent damage at the cellular level. They suppress inflammation that leads to ineffective collagen, and can provide protection against photodamage to the skin. M. oleifera leaf extract was reported to be rich in amino acid proteins and especially amino acids such as histidine, arginine, threonine, serine, glycine and alanine, which can improve water retention in cranberry (Anwar et al., 2007).

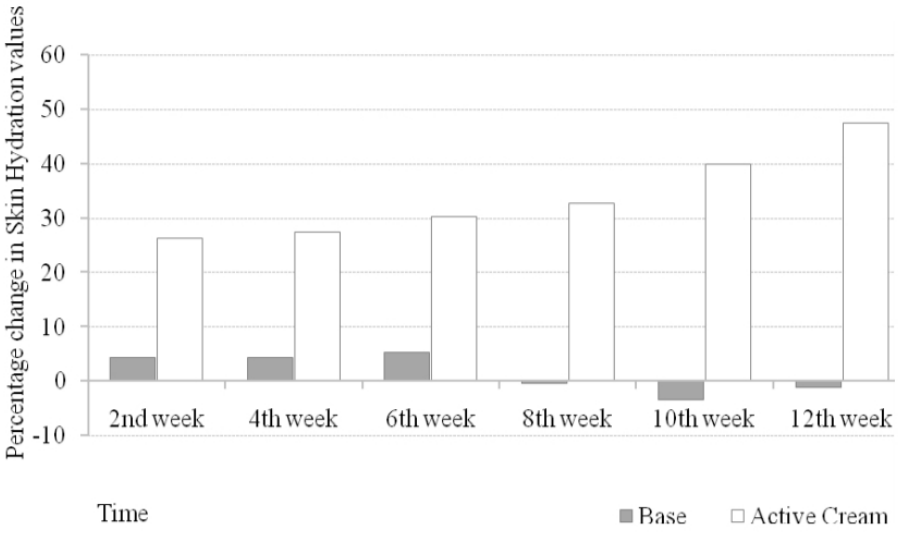

Figure 2. Percentage of change in the skin hydration values of volunteers after the application of base and active cream.

The increase in hydration levels in our results may increase amino acid water retention to some extent in November.M. oleifera leaves contain vitamin A (Anwar et al., 2007; Nambiar and Parnami, 2008). Vitamin A, its derivatives and beta-carotene (pro-vitamin A) have been popular additives in cosmetics for many years. Beta-carotene has been found to have a topical photoprotective effect in the form of increasing protein and collagen and DNA content and thickening of the epidermis (Lupo, 2001). Vitamin B is a group of water-soluble nutrients. It acts as a moisturizer and increases

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water content. Humectants can draw water into the stratum corneum to soften the skin; it is effective as a humectant in cosmetics (Lupo, 2001; Anwar et al., 2007). Our findings of increased skin moisture values in volunteers induced by the active cream may be related to the presence of vitamin B in the leaves of M. oleifera. All of these moisturizers, including this one, deliver water directly to the skin from its aqueous phase. Lipids in creams can also form a film on the surface of the skin, which reduces TEWL and increases skin moisture so that water mixes. Lipids can also enter broken skin and affect barrier recovery (Loden et al., 1999). Patients with atopic skin have a deficient protective function in both rough and clinically normal skin, which increases the risk of developing contact dermatitis. Moisturizers are often used to treat dry skin. The mechanism and clinical relevance require further investigation.

V. CONCLUSION

When evaluating a cream containing M. oleifera leaf extract, the effect of improving skin moisture by blocking UV radiation (phenolic compounds) was revealed. After application of M. oleifera leaf extract, only the cream supplemented with antioxidants, phenolic compounds, vitamins A and B improved the water content of cranberries, which was shown to be significantly effective.

Therefore, M. oleifera leaf extract is a natural effective ingredient in a skin humectant that can be used in moisturizing cosmetic formulations and as an additive to dry skin care. The results obtained in this study suggest that a topical formulation of moringa extract is capable of rejuvenating the skin and reducing the signs of skin aging. Future research is needed to clarify the antiaging effects and mechanism of herbal ingredients in topical formulations.

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