

# Preparation of skin care product using *coccinia abyssinica* tuber extract

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## Research Article

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# Abstract

Anchote (*Coccinia abyssinica*) is highly nutritious crop which is mostly cultivated in Wollega Zone, Oromia Regional State of Ethiopia. Anchote tubers are rich in calcium and starch which are essential for healthy skin. Thus, a new skin cream was formulated using *coccinia abyssinica* tuber extract for the purpose of moistening and nourishing the skin. *Coccinia abyssinica* tuber extract was prepared by maceration extraction method. Then, tuber extract of *coccinia abyssinica* was mixed with ingredients such as thickening agents, humectant, emollient, antioxidant, preservatives and fragrance to prepare a new skin cream. A newly prepared skin care product was applied to the human skin. The skin became soft, attractive and supple after using this new skin cream. It didn't cause any side effects on the human body. The current study revealed that *coccinia abyssinica* skin care product enrich the body with nutrients and useful minerals.

## 1. Introduction

The term 'anchote' is the local name of *coccinia abyssinica*. Anchote (*Coccinia abyssinica*) is highly nutritious crop which is mostly cultivated in Wollega Zone, Oromia Regional State of Ethiopia. Anchote is traditional food crop which play a pivotal role in nutritional security, especially in the western Oromia Regional state of Ethiopia. It is herbaceous plant species which is usually consumed in cooked form. Tuberous root is the main edible portion of *coccinia abyssinica*. A number of essential nutrients in anchote such as Calcium, Starch, Zinc, Magnesium, Iron, protein and etc makes it the most important food crop. These essential nutrients are vital for our skin. Therefore, skin care product which offers significant advantages over competing products can be prepared using tuber extract of anchote (*Coccinia abyssinica*). Anchote (*Coccinia abyssinica* (Lam.) Cogn) abundantly exist in Western parts of Ethiopia.

Anchote (*Coccinia abyssinica*) is plant endemic in Ethiopia with a high calcium content grown for its edible tuberous roots (Bekele, A., Feyissa, T. & Tesfaye, K. 2014). It is popular in the western Oromia Region of the country. Apart from food, the crop is also used in traditional medicine (Parmar, A., et. al. 2017). In addition to forming part of the dietary staple of the Wallaga Oromo, the tuber is central to the culture and identity of the people (Bula, SW. 2018). Anchote (*Coccinia abyssinica* (Lam.) Cogn.) is a perennial root crop belonging to Cucurbitaceae family (Serbessa Tolera, B. et al. 2021). The crop plays an important role in the local diet of rural and peri-urban communities mainly in Western and South Western Ethiopia (Zerihun, T., et. al. 2020). It is commonly used as occasional food during holidays and as therapeutic food to treat fractured bone or develop strong bone (Bikila, AM., et al. 2020).

Anchote is an indigenous tuberous crop that is commonly produced by Oromo nation in western and southwestern Oromia region in Ethiopia (Melkamu, B. et. al. 2018). Traditionally, farmers use in-situ stored Anchote tuber with the hypothesis of nutrient concentration increase over time (Abera, G., & Haile, D. 2015). Though anchote is underutilized, it has nutritional, socio-cultural and socioeconomic importance for the growers (Yassin H. et. al., 2013). Anchote is a drought tolerant crop providing food security; it is a highly productive and nutritionally ample crop (Abera, G. et al. 2019).

## 2. Materials And Methods

*Coccinia abyssinica* tuber extract was prepared by maceration extraction method. Coarsely powdered *coccinia abyssinica* tuber (refer to fig-1) was placed inside a container; menstruum was poured on top until completely covered the powdered tuber. The container was then closed and kept for three consecutive days. The content was stirred periodically to ensure complete extraction. At the end of extraction, the micelle was separated from marc by filtration. Then, tuber extract of *coccinia abyssinica* was mixed with ingredients such as thickening agents, humectant, emollient, antioxidant, preservatives and fragrance to prepare a new skin cream. A new skin cream was formulated by mixing ingredients in table-1.

No	Ingredients	Amount (%)
1.	Water	60
2.	<i>Coccinia abyssinica</i> tuber extract	9.53
3.	Mineral oil	8
4.	Isopropyl alcohol	4.86
5.	Stearic acid	4
6.	Glycerin	3.5
7.	Microcrystalline wax	2.5
8.	Magnesium sulfate	2
9.	Panthenol	1.5
10.	Cetearyl alcohol	1.35
11.	Octyldodecanol	1.25
12.	Dehydro-acetic acid	1
13.	Vitamin E (tocopherol)	0.5
14.	Fragrance	0.01
	TOTAL	100%

Table-1. Anchote cream formulation

## 3. Results

Whitish brown semi-solid cream (refer to fig-2) was prepared by mixing ingredients in table-1. A newly prepared skin care product was applied to the human skin. The skin became soft, attractive and supple after using this new skin care product. It didn't cause any side effects on the human body.

## 4. Conclusions

Calcium, starch and other nutrients in anchote tubers are vital for our skin. Thus, a new skin care product was prepared using tuber extract of *Coccinia abyssinica* (anchote) with the aim of nourishing the skin. The current study revealed that *Coccinia abyssinica* skin care product enrich the body with nutrients and useful minerals. *Coccinia abyssinica* skin cream offers significant advantages over competing products.

## Declarations

### Conflict of interest statement

No conflict of interest was reported by the author.

### Funding information

No funding or grant has been received for conducting this study.

Statement of ethics approval: The studies involving human participants were reviewed and approved by National Research Ethics Review Committee of Ethiopia.

Statement on participant consent: All participants provided with written informed consent to participate in this study.

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## Figures



**Figure 1**

Powdered *coccinia abyssinica*



**Figure 2**

Anchote Cream