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Preparation and Evaluation of Herbal Nutmeg Night Face Cream

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Abstract: ***The spice known as nutmeg is manufactured from the seeds of the tropical evergreen tree Myristica fragrans (family Myristicaceae). Nutmeg is used to flavour a variety of baked items, confections, puddings, potatoes, meats, sausages, sauces, vegetables, and beverages like eggnog. It has a distinctly pungent scent and a toasty, somewhat sweet taste. Nutmeg is believed to have antibacterial, anti-inflammatory, and antioxidant properties, which could help to improve the overall health and appearance of the skin. Nutmeg cream is often used to address issues such as acne, inflammation, and signs of aging. It may also help to improve skin texture and tone, as well as reduce the appearance of dark spots and blemishes. Spreadability of the developed formulation was good. The cream's PH and viscosity were both good. During storage, cream doesn't exhibit any phase separation of any kind.***

Keywords: nutmeg ,o/w emulsion ,herbal extract ,skin care , antibacterial

I. INTRODUCTION

Women have been dressing themselves since the dawn of time as a means of enhancing personal beauty. Many even today, particularly in rural regions, prefer natural cures (plant extracts) over conventional cosmetics.

Cosmetics are items that are used to sanitize and enhance the skin. These items include active substances that advertise the potential for medical and drug-like advantages. A small percentage of women still use herbal cosmetics to enhance their skin. The fact that a herbal cosmetic is manufactured only from herbs and shrubs is its strongest selling point. The natural components in herbs have no negative effects on the human body, but these herbal treatments bolster the body with vitamins and other beneficial minerals. Nonetheless, there is currently an increased there is scientific proof that plants have a broad and complex array of active substances (photochemicals) that can soothe or smooth skin as well as actively restore, heal, and protect skin[1,2].



Fig .1

The spice known as nutmeg is manufactured from the seeds of the tropical evergreen tree Myristica fragrans (family Myristicaceae). The tree is indigenous to Indonesia's Moluccas, sometimes known as the Spice Islands, and it is mostly grown there as well as in the West Indies. Nutmeg is used to flavour a variety of baked items, confections, puddings, potatoes, meats, sausages, sauces, vegetables, and beverages like eggnog. It has a distinctly pungent scent and a toasty, somewhat sweet taste. The nutmeg seed's fleshy arils are where the spice mace comes from. In the past, grated nutmeg was used as an incense by the Romans and as a sachet.

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II. REVIEW OF LITERATURE

1) Bijauliya, et al.,2017-worked on formulation and evaluation of herbal cream, herb is a plant or plant extract, including leaves, bark, berries, roots, gums, seeds, stems and flowers which are favour with nourishing and healing elements. Cosmetics alone are not competent to take care of skin and others body parts, it requires association of active ingredients to check the casualty and ageing of the skin. Herbal cosmetics have improved much popularity among the population. Herbal cosmetics products claimed to have efficacy and intrinsic acceptability due to routine use in daily life and avoid the adverse effects which are commonly seen in synthetic products.[3].
2) Sahu, T. et al.,2016-studied on Skin Cream as Topical Drug Delivery System, In the present article, the history of creams, their advantages and disadvantages, method of preparation and ingredients used was discussed. Creams can be applied to any part of the body with ease. It is convenient to use cream by all the age group of people. The types of creams with their examples are discussed in this article. In coming future, more advanced technologies and methods will be used for preparation, formulation and evaluation of creams. Also the demand of herbal constituents based creams are increasing day by day[4]
3) Shori, A.B., 2022. worked on extraction of polyphenols from nutmeg, The consumption of antioxidant-rich foods can lower the risk of chronic diseases. In the pre-sent worked, polyphenol extract from nutmeg, were prepared.[5].
4) Tambe, B.D., 2021, formulation and evaluation of herbal cream of crude drugs, The purpose of the present research work was to formulate and evaluate vanishing herbal cream. Herbal creams offer several advantages over other creams. The majority of existing creams which has prepared from drugs of synthetic origin and give extras fairness to face, but it has several side effects such as itching or several allergic reactions. Herbal creams do not have any of these side effects, without side effects it gives the fairness look to skin. Method carried out to prepare herbal cream was very simple.[6]
5) Rai, et al. (2019)The work is focused on general ingredients used in skin creams, method of preparation of Antibacterial facecream, evaluation parameter of hair cream for its antibacterial efficacy.[7]

III. NEED AND OBJECTIVE OF STUDY

A. *Objective*

The objective of nutmeg cream is to provide potential benefits to the skin. Nutmeg is believed to have antibacterial, anti-inflammatory, and antioxidant properties, which could help to improve the overall health and appearance of the skin. Nutmeg cream is often used to address issues such as acne, inflammation, and signs of aging.

It may also help to improve skin texture and tone, as well as reduce the appearance of dark spots and blemishes. However, it is important to note that the effectiveness of nutmeg cream will depend on the specific formulation and concentration of nutmeg, as well as individual skin type and concerns.

Nutmeg has some potential benefits for the skin, such as having antibacterial and anti-inflammatory properties. However, there is limited scientific evidence to support the use of nutmeg face cream for specific skin concerns.

If you are interested in using a nutmeg face cream, it is important to note that nutmeg can be irritating to the skin in high concentrations. It is always a good idea to patch test a small area of skin before applying any new product all over your face.

Ultimately, whether or not you need a nutmeg face cream will depend on your specific skin concerns and needs. It may be helpful to consult with a dermatologist or skincare professional to determine the best course of action for your skin.

B. *Need*

The need for nutmeg cream will depend on your individual skin concerns and needs. Nutmeg cream is believed to have potential benefits for the skin, such as having antibacterial and anti-inflammatory properties, which can help to address issues like acne, inflammation, and signs of aging. However, it is important to note that there is limited scientific evidence to support the use of nutmeg cream for specific skin concerns.

Additionally, nutmeg can be irritating to the skin in high concentrations, so it is important to patch test a small area of skin before applying any new product all over your face.

If you are interested in using nutmeg cream, it may be helpful to consult with a dermatologist or skincare professional to determine if it is appropriate for your skin type and concerns. They can provide personalized advice on the best course of action for your skin.

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IV. DRUG PROFILE, HERBAL, EXCIPIENTS

A. NUTMEG

Synonyms: Myritica fragrans

Family: Myristicaceae

Uses: Nutmeg and its oil are used as stimulants, flavouring agents and carminatives. The expressed fatty oil and the volatile oil have been used externally in chronic rheumatism.

Effects: Ingested in small amounts as a spice, nutmeg produces no noticeable physiological or neurological response, but in large doses, both raw nutmeg freshly ground from kernels and nutmeg oil have psychoactive effects,[8][9] which appear to derive from anticholinergic-like hallucinogenic mechanisms attributed to myristicin and elemicin.[8][9]

B. BEESWAX

Synonyms:candlewax

Discription: Beeswax is a product made from the honeycomb of the honeybee and other bees. The mixing of pollen oils into honeycomb wax turns the white wax into a yellow or brown color.Beeswax is used for high cholesterol, pain, fungal skin infections, and other conditions. But there is no good scientific research to support these uses.

In foods and beverages, white beeswax and beeswax absolute (yellow beeswax treated with alcohol) are used as stiffening agents.In manufacturing, yellow and white beeswax are used as thickeners, emulsifiers, and as stiffening agents in cosmetics. Beeswax absolute is used as a fragrance in soaps and perfumes. White beeswax and beeswax absolute are also used to polish pills.

C. Liquid Parrafin

Synonyms: paraffinum liquidum, paraffin oil, liquid paraffin oil or Russian mineral oi

Uses: Liquid paraffin is primarily used as a pediatric laxative in medicine and is a popular treatment for constipation and encopresis.[1] Because of its ease of titration, the drug is convenient to synthesize. It acts primarily as a stool lubricant, and is thus not associated with abdominal cramps, diarrhea, flatulence, disturbances in electrolytes, or tolerance over long periods of usage, side effects that osmotic and stimulant laxatives often engender (howeversome literature suggests that these may still occur).[1][3] The drug acts by softening the feces and coats the intestine with an oily film Because of this it reduces the pain caused by certain conditions such as piles (haemorrhoids). These traits make the drug ideal for chronic childhood constipation and encopresis, when large doses or long-term usage is necessary[10]

D. Borax

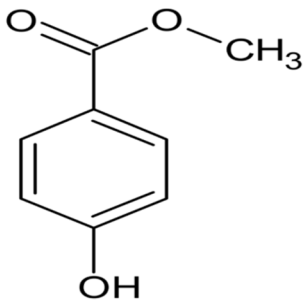
Synonyms: sodium borate, sodium pyroborate, sodium tetraborate

Uses: The best-known use for borax is as a cleaner, but you can find the ingredient in many other household products, including:

- Cosmetics such as lotions, skin creams, moisturizers, sunscreen, and acne care products
- Paint and ceramic glaze
- Specialty toothpastes and mouthwashes
- Herbicides

Borax health risks:Borax can cause nausea, vomiting, and diarrhea if you ingest it by itself, and large amounts can lead to shock and kidney failure. It's banned in U.S. food products. It also can irritate your skin and eyes, and it can hurt your nose, throat, and lungs if you breathe it in. If you're around it often, it can cause rashes and might affect male reproductive organs**.**

E. Methyl Paraben



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IUPAC name : Methyl 4hydroxybenzoate
Other names : Methyl paraben
Chemical Formula : $C_8H_8O_3$
Molar mass : 152.15 g·mol−1
Uses : Methyl paraben is an antifungal agent often used in a variety of cosmetics and personalcare products.
It is also used as a food preservative. Methyl paraben is commonly used as a fungicide in
Drosophila food media
Solubility : Soluble in water (2.5 g/l at 25° C), benzene (slightly soluble), carbon tetrachloride (slightly soluble), ethanol, ether, acetone, DMSO, methanol, warm oil (25 g/l), and warm glycerol (1 g/70 ml).

- *Discriptionn*

Methylparaben is a 4-hydroxybenzoate ester resulting from the formal condensation of the carboxy group of 4-hydroxybenzoic acid with methanol. It is the most frequently used antimicrobial preservative in cosmetics. It occurs naturally in several fruits, particularly in blueberries. It has a role as a plant metabolite, an antimicrobial food preservative, a neuroprotective agent and an antifungal agent.

F. Rose Oil

Synonyms: attar of roses; attar; atar; athar; ottar.
Botanical Name:Rosa damascena
Solubility: Soluble in alcohol and oils. Insoluble in water.

Uses:

1) Eases Pain

In a 2015 study, postoperative children inhaled either almond oil or rose oil. The patients in the group that inhaled rose oil reported a significant decrease in their pain levels. Researchers think the rose oil may have stimulated the brain to release endorphins, often called the “feel-good” hormone.

2) Relief From Menstrual Discomfort

patients with menstrual pain received abdominal massages to relieve their discomfort.One group was massaged with a carrier oil (almond oil) only, while the other group was massaged with almond oil plus rose oil. The rose oil group reported having less cramping pain following the massage than the almond oil group did.

V. METHOD OF PREPARATION OF ANTIBACTERIAL FACE CREAM

A. Extract Preparation

One of the most crucial processes entailed maceration, which involved soaking plant components (leaves or powders) in a container with a cold solvent and letting it lie at room temperature for at least three days while stirring it frequently. In order to release the soluble phytochemicals, the plant's cell wall was meant to be softened and broken during the processing. The mixture is pressed or strained by the filtration process after three days.

Procedure:

1) One thousand gram of nutmeg powder were obtained.
2) Nutmeg powder was blended and macerated with 96 % of ethanol for 5 days.
3) The solution then filtered with flannel, to obtain a thin filtrate. The aqueous filtrate is then evaporated on the water bath until all the ethanol has evaporated and a thick filtrate is produced[11].



Fig .2 Maceration of Nutmeg Powder

VI. CREAM FORMULATION

A. Procedure

1) Heat liquid paraffin and beeswax in a borosilicate glass beaker at 75 ℃ and maintain that heating temperature. (Oil phase).

2) In another beaker, dissolve borax, methylparaben in distilled water and heat this beaker to 75 ℃ to dissolve borax and methylparaben and to get a clear solution. (Aqueous phase).

3) Then slowly add this aqueous phase to heated oily phase [25]. Then add a measured amount of extract and stir vigorously until it forms a smooth cream.

4) Then add few drops of rose oil as a fragrance.

5) Put this cream on the slab and add few drops of distilled water if necessary and mix the cream in a geometric manner on the slab to give a smooth texture to the cream and to mix all the ingredients properly. This method is called as slab technique or extemporaneous method of preparation of cream.

SR.NO.	INGREDIENTS	ROLES
1.	Extract	Antibacterial, Anti-inflammatory,
2.	Beeswax	Emulsifying agent, stabilizer and gives thickness to the cream.
3.	Liquid Paraffin	Lubricating agent
4.	Borax	Alkaline agent which reacts with emulsifying agent to form soap.
5.	Methylparaben	Preservative
6.	Rose oil	Fragrance

Table no.1

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VII. FORMULA FOR CREAM PREPARATION

SR.NO	Ingredients	Formulation (F1)	Formulation (F2)	Formulation (F3)
1.	Extract	3.5ml	3ml	3ml
2.	Beeswax	3gm	3.5gm	3.2gm
3.	Liquid Paraffin	10ml	15ml	12ml
4.	Borax	0.2gm	0.4gm	0.3gm
5.	Methylparaben	0.02gm	0.04gm	0.03gm
6.	Distilled water	q.s	q.s	q.s
7.	Rose oil	q.s	q.s	q.s

Table no.2

VIII. EVALUATION OF CREAM

1) *Physical Evaluation:* In this test, cream was observed for color, odor, texture, state. (Table no.3)

SR.NO.	Parameters	Formulation (F1)	Formulation (F2)	Formulation (F3)
1.	Color	Faint Green	Faint Green	Faint Green
2.	Odor	Pleasant	Pleasant	Pleasant
3.	Texture	Smooth	Smooth	Smooth
4.	State	Semisolid	Semisolid	Semisolid

(Table no.3)

2) *Irritancy Test:* Mark the left-hand dorsal surface area (1 cm2) with a marker. After that, the cream was administered there, and the duration was recorded. Then, for a period of up to 24 hours, it is examined for irritancy, erythema, and edema, if any, and reported. The formulation was free from edema, erythema, irritant effect.

SR.NO.	Formulation	Irritant Effect	Erythema	Edema
1.	F1	Nil	Nil	Nil
2.	F2	Nil	Nil	Nil
3.	F3	Nil	Nil	Nil

Table no.4

3) *Washability:* A small amount of cream was applied on the hand and it is then washed with tap water. The formulation was easily washable

SR.NO.	Formulation	Washability
1.	F1	Not easily Washable
2.	F2	Not easily Washable
3.	F3	Easily Washable

Table no.5

4) *pH:* 0.5 g cream was taken and dispersed in 50 ml distilled water and was measured by using digital pH meter. The pH was found to be **7.2**.

SR.NO.	Formulation	pH
1.	F1	6.7
2.	F2	6.5
3.	F3	7.2

Table no.6

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5) *Spreadability:* The spreadability was measured in terms of how long it took two slides operating under a specific load to separate from the cream positioned in between the slides. The spreadability is improved by separating the two slides more quickly. Glass slides with uniform dimensions were selected from two sets. The cream formulation was then placed on a slide that was cut to the proper size. The formulation was then covered by another slide. The cream between the two slides was then uniformly compressed to produce a thin layer after a weight or specific load was applied to the upper slide. The extra formulation that had adhered to the slides was scraped off once the weight was removed. The weight that was linked to the upper slide gave it the freedom to fall off on its own. It was noted how long it took the upper slide to detach.

Spreadability= m × l/t

Where,

m = Standard weight which is tied to or placed over the upper slide(30g)

l = Length of glass slide(5cm)

t = Time taken in seconds

The spreadability was found to be 15.12g/cm

SR.NO.	Formulation	Time(s)	Spreadability(g×cm/s)
1.	F1	9	22.6
2.	F2	7	31.4
3.	F3	15	15.12

Table no 7.

6) *Greasiness:* Here, a smear of cream was put to the skin's surface, and its grease- or oil-likeness was assessed[12]. The cream was found to be non greasy.

SR.NO.	Formulation	Greasiness
1.	F1	Greasy
2.	F2	Greasy
3.	F3	Non-greasy

Table No.8

IX. RESULT AND DISCUSSION

A. *Result*

Sr.No.	Parameter	Observation
1.	Color	Reddish brown
2	Odour	Pleasant
3	Consistency	Semisolid
4	pH	7.22
5.	Spreadability	3.38gm.cm/sec
6.	Irritancy test	Nil
7	Texture	Smooth
8	Viscosity	4406.3cps

B. *Discussion*

The formulation and evaluation of nutmeg face cream were the focus of the current work. Because this cream formulation was an o/w type of emulsion, it could be easily removed with plain water after use. Spreadability of the developed formulation was good. The cream's PH and viscosity were both good. During storage, cream doesn't exhibit any phase separation of any kind. The cream had a non-grassy flavor and was simple to remove after use. The skin was not harmed or irritated by the formulation.

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X. CONCLUSION

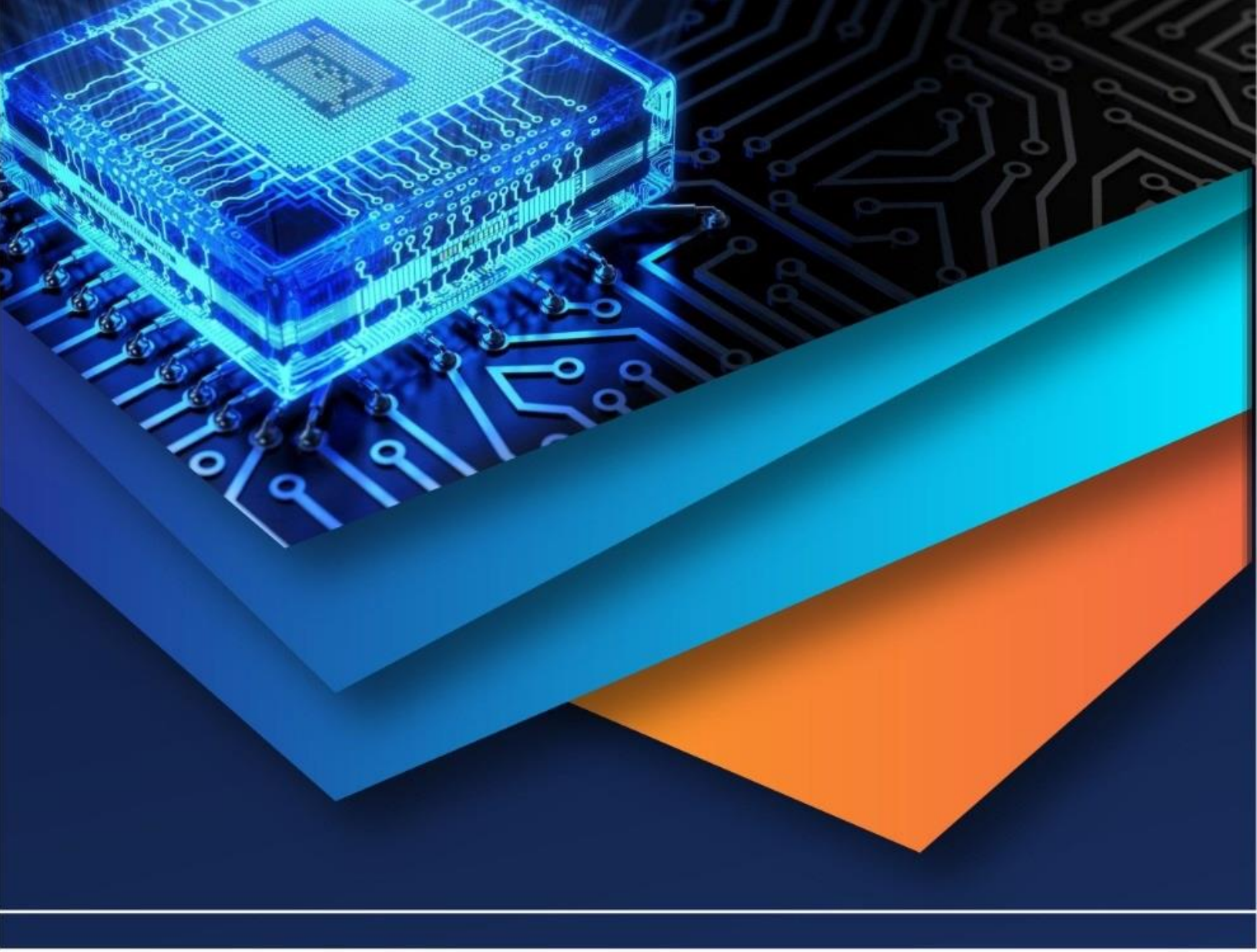
In conclusion, nutmeg herbal face cream is a skincare item made with nutmeg-based ingredients that are reputed to provide positive skin-care effects. Antioxidants, vitamins, and minerals found in nutmeg are said to nourish the skin, keep it hydrated, and encourage a more even complexion. Additionally, nutmeg-based herbal extracts may be relaxing and anti-inflammatory, which may be able to calm sensitive skin and lessen redness.

It's crucial to remember that a nutmeg herbal face cream's effectiveness might change based on a number of variables, including a person's unique skin type, sensitivity, and general skincare regimen. While some people could find nutmeg herbal face cream to be a useful addition to their skincare regimen, others might not experience any noticeable effects.

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