

Healing, Beauty and Symbolism : The Many Faces of Jungle Geranium

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Abstract: Medicinal herbs play an essential role in modern therapeutics due to their affordability, safety, and diverse pharmacological properties. *Ixoracoccinea*, a widely distributed tropical shrub of the family Rubiaceae, is traditionally used across Asia for treating numerous ailments. Beyond its horticultural and cultural value, the plant exhibits significant therapeutic potential supported by scientific studies. Various parts of *Ixoracoccinea* demonstrate anti-inflammatory, anti-ulcer, hepatoprotective, antimicrobial, antidiarrheal, antioxidant, and wound-healing activities. Preclinical studies highlight its efficacy in reducing gastric ulcers, protecting against aflatoxin-induced liver damage, and managing diarrhoea comparable to standard drugs. Traditional medicine systems employ *Ixora* flowers, sentry, bronchitis, menstrual abnormalities, skin illnesses, and gastrointestinal roots, and leaves for conditions such as dysentery, bronchitis, menstrual disorders, skin diseases, and gastrointestinal problems. The plant has substantial therapeutic potential that is backed by scientific research, in addition to its horticultural and cultural value. *Ixoracoccinea* exhibits anti-inflammatory, anti-ulcer, hepatoprotective, antibacterial, antidiarrheal, antioxidant, and wound-healing properties in different areas. Preclinical research shows that it is just as effective as conventional medications at preventing aflatoxin-induced liver damage, reducing stomach ulcers, and treating diarrhoea. *Ixora* flowers, roots, and leaves are used in traditional medical systems to treat ailments like dye uses. Additionally, some *Ixora* species have estrogenic and anticancer qualities. *Ixora*-derived compounds have also been investigated recently for contemporary therapeutic uses, such as in silico screening for possible matrix metalloproteinase-9 (MMP9) inhibitors related to metastatic breast cancer. Natural materials derived from *Ixora* have also demonstrated potential in environmental applications, such as the adsorption of heavy metals like chromium from industrial effluents. *Ixora* and curry leaf extracts have shown promise in skincare cosmetic formulations. All things considered, *Ixoracoccinea* is a complex plant with wide ethnomedical significance, pharmacological potential, and use in contemporary herbal therapy, environmental remediation, and cosmetic formulations.

Keywords: *IxoraCoccinea*, Herbal Hair Cream, Pharmacological Activities, Flowers

I. INTRODUCTION

Medicinal herbs used in modern medicine hold a significant place in daily life. The use of herbal medicines as alternatives to synthetic drugs is rapidly increasing due to their affordability and minimal side effects. *Ixora coccinea*, commonly known as *Ixora*, stands as a vibrant emblem of tropical beauty within the vast diversity of the plant kingdom. It is a common flowering shrub belonging to the family Rubiaceae, and is widely recognized by various names such as Jungle Geranium, Jungle Flame, West Indian Jasmine, and Techī. *Ixora coccinea* primarily grows in tropical and subtropical regions, especially across Asia. It is native to countries including India, Sri Lanka, Malaysia, and Indonesia [1]. Cosmetic products are used to protect the skin from exogenous and endogenous harmful agents while enhancing its beauty and attractiveness [2,3]. The herbal ingredients present in skin care products that supports the strength to the skin, integrity of skin and texture, moisturizing, maintaining elasticity. The herbal ingredients present in care. Although the genus *Ixora* comprises around 500 species, only a few are commonly cultivated and the name *Ixora* typically refers to *Ixora coccinea*. This plant mainly grows in dry regions with slightly acidic soil and is



recognized for its dense, rounded growth habit. It thrives in a wide range of soil types and climatic conditions, making it highly adaptable for both tropical gardens and indoor cultivation. With proper care including regular watering and occasional pruning to promote bushy growth and abundant flowering—*Ixora coccinea* can flourish year-round in suitable climates. Beyond its botanical characteristics, *Ixora coccinea* also holds cultural significance in various regions.



Fig 1 : IXORA COCCINEA

OBJECTIVES :

- To identify research gaps and propose future directions for therapeutic development and formulation based on *Ixora coccinea*.
- To evaluate the pharmacological activities of the plant based on existing preclinical and clinical studies.
- To review the traditional medicinal uses of different parts of the plant across various cultures and healing systems.
- To compile and analyze the phytochemical constituents reported in *Ixora coccinea*, including major bioactive compounds.
- To summarize the botanical description, taxonomy, and morphological characteristics of *Ixora coccinea*.

TABLE 1 – TAXONOMICAL HIERARCHY OF IXORA COCCINEA

KINGDOM	PLANTAE
Subkingdom	Viridaeplantae
Division	Tracheophyta
Class	Magnoliopsidia
Order	Gentianales
Family	Rubiaceae
Species	Coccinea



Distribution:

According to legend, ixora is an asian native whose name comes from an indian deity. Approximately 400 species are found in africa, india, and southern asia. Ixora members are good candidates for bonsai since they like acidic soil in several south east Asian countries, such as Thailand, it is also a common option for hedges. A number of well-known cultivars are dwarfs, typically remaining under three feet (one meter) in height. The coriaceous leaves are rectangular and obtuse, sessile or sub-sessile, and range in length from 2 cm to 6 inches. They vary in terms of bloom size, colour, plant height, and leaf size

ACTIVITIES OF IXORA COCCINEA :

1]Anti-inflammatory Activity -The ability of a drug or therapy to lessen swelling or inflammation is known as anti-inflammatory. When there is persistent inflammation, an excess of oxygen and nitrogen species are produced, which stimulates inflammatory leukocytes. Oral administration of the leaves' aqueous and methanolic extracts resulted in a concentration-dependent reduction in inflammation. Cotton pellet granuloma formation has also been found to be effectively suppressed by the aqueous extract, suggesting that the extract's anti-inflammatory properties also apply to the chronic model of inflammation.

2]Anti-cancer Activity –This Study Investigates With a focus on matrix metalloproteinase-9 (MMP9), which is extensively expressed in metastatic disease, this study explores its potential as an anti-breast cancer medication. Previous MMP9 inhibitor clinical trials have mostly failed, underscoring the need for efficient substitutes. A natural chemical database was used for in silico screening in order to find possible inhibitors of MMP9's hemopexin-like domain (PEX9)[5,6].

3] Anti – Ulcerogenic Activity - One of the most prevalent conditions affecting people is gastrointestinal ulcers, which are linked to serious morbidity and mortality. Although the precise etiology of stomach ulcers is unknown, variables like smoking, long-term use of anti-inflammatory medications, alcohol, stress, fatty foods, and Helicobacter pylori infections are known to promote and exacerbate the condition[7].Preclinical research has demonstrated that oral treatment of Ixora's fresh leaf methanolic extract (100 and 200 mg/kg) has anti-ulcerogenic effects against pyloric ligation and hypothermic-restraint stress in rats. One Since the extract had a greater anti-ulcerogenic effect (50134%) at a lower dose of 100 mg/kg, it was more successful in preventing hypothermic-restraint stress[8].

4]Hepatoprotective Activity - Serious liver abnormalities are difficult to treat due to the lack of appropriate treatments in the current medical system. Liver dysfunction and diseases are a major health concern. One Numerous liver conditions have been treated using herbal remedies, and some pharmaceuticals have shown promise. One Prior to intraperitoneal administration of aflatoxin B1, studies have demonstrated that oral administration of the ethanolic extract of the roots (100, 200, and 300 mg/kg for two consecutive days) is helpful in preventing liver damage. One Pre-treatment with the extract reduced blood hepatic enzyme levels of glutamate oxaloacetate transaminase, glutamate pyruvate transaminase, and alkaline phosphatase in a concentration-dependent manner as compared to the aflatoxin B1 group alone.

5]Anti-oxidant Activity - Disease pathogenesis has been linked to excessive production of free radicals, especially reactive oxygen species like hydroxyl radicals, superoxide anion radicals, hydrogen peroxide, oxygen singlets, hypochlorite, and reactive nitrogen species like nitric oxide radicals and peroxy nitrite radicals. Arthritis, gastrointestinal disorders, carcinogenesis and tumour promotion, diabetic complications, atherosclerosis, Parkinson's disease, Alzheimer's disease, and acquired immune deficiency syndrome (AIDS) are some of the significant ones[10,11,12]

6]Anti-diarrhoeal Activity -Diarrhoea brought on by intestinal infections is a serious health issue and a significant contributor to infant mortality in underdeveloped nations[13].The best anti-diarrhoeal effect was Observed for the 400 mg/kg extract administered Cohorts and the effects were comparable to that Of loperamide (5 mg/kg)1[14].

7]Antimicrobial Activity - Antimicrobials are frequently used to treat a variety of illnesses, including antibiotics and antifungal medicines. One However, some bacteria and fungi have developed antibiotic resistance as a result of



patients' widespread irrational use and negligence in following the treatment plan. One Plants are increasingly being explored as a potential lead for the creation of antimicrobial drugs as a result of ongoing efforts to find newer, effective agents.[15,16].

MORPHOLOGY OF IXORA COCCINEA :

Flowers -

Arrangement : Flowers are born at the ends of branches in dense , rounded clusters called corymbose cymes.

Colour : Bright scarlet , though other colours like yellow , orange , pink and white can found in some varieties.

Structure : Small , tubular , with four petals. The flower is tube like long (2.5-4.0cm)

Root System –

Fibrous and deep , with fine root Hair.

Fruit -

A berry or spherical fruit.

Red when ripe , but can also be yellow or any other colour.

Chemical Constituents :

Triterpenoids

Flavonoids and Glycosides

Sterols

All SPECIES OF IXORA COCCINEA FLOWER :



Fig 2 : IXORA PINK FLOWER



Fig 3 : CHINESE IXORA FLOWER





Fig 4 : WHITE IXORA



Fig 5 : PURPLE IXORA



Fig 6 : ORANGE IXORA

Traditional Uses Of *Ixora Coccinea* - *Ixora coccinea* has long been used to treat a variety of illnesses in Ayurveda and other traditional medical systems. One The flowers are used to treat luecorrhoea, dysentery, dysmenorrhea, hemoptysis, hypertension, irregular menstruation, sprains, bronchitis fever, sores, chronic ulcers, scabies, and skin conditions in the Ayurvedic medical system[17,18].The concoction is preparedBy boiling its flowers with the leaves of *ColdeniaProcumbens*, *Centella asiatica*, and the stem bark of *Madhuca longifolia*, mixed with coconut oil and thenUsed as a wound healing agent1 The flowers are used To treat catarrhal bronchitis anddysentery[19,20]

Respiratory problems: Traditionally used to treat asthma, bronchitis, and coughs.

Digestive issues: Applied for diarrhea, dysentery, indigestion, and colic.

Skin conditions: Used as a remedy for skin diseases, wounds, eczema, and ulcers.

Pain and inflammation: Utilized for its analgesic and anti-inflammatory properties.

Other uses: Traditional applications include treating hiccups, fever, loss of appetite, and using it as an antiseptic.





Fig 7 : IXORA LEAVES

Leaves -It was discovered that *I. coccinea* leaves had anti-inflammatory, anti-diarrheal, anti-asthmatic, anti-ulcer, and antinociceptive properties¹¹. Additionally, they are used as an antibacterial and to treat skin conditions, colic, flatulence, diarrhoea, indigestion, ulcers, wounds, and vitiated pitta. Fresh *I. grandiflora* leaves are applied as a poultice to treat concussions, boils, sprains, and eczema. Wounds and skin ulcers were treated with the leaf decoction. *I. chinensis* leaves have been utilized as a treatment for early-stage tuberculosis as well as headaches and stomach-aches . The leaves of *I. finlaysoniana* exhibited antigestagenic properties. *I. javanica* leaves are used to treat cancer. *I. parviflora* leaf extract exhibited hypotensive, spasmolytic, and antiviral properties.

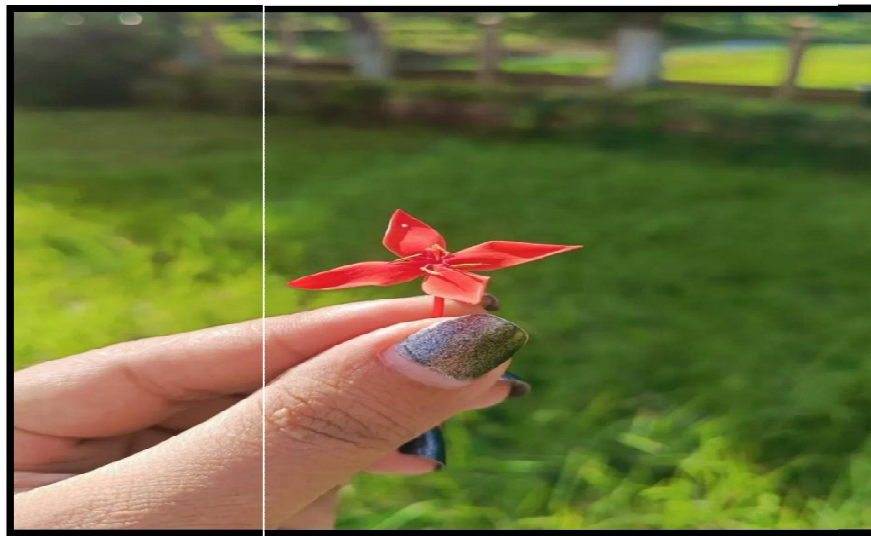


Fig 8 : IXORA SINGLE FLOWER

FLOWERS - Cancer, leucorrhoea, dysentery, dysmenorrhea, hemoptysis, and hypertension were all treated with the flowers of *I. coccinea*¹⁰. *I. javanica* flowers are utilized as vegetables in the area and have an anticancer principle. Fresh *I. chinensis* flower infusion is consumed freely in the Philippines because it is believed to be beneficial for headaches, bleeding, and early-stage tuberculosis. Decoction of flowers used to treat hypertension and amenorrhea Twenty-two. Scientific research has shown that *I. finlaysoniana* flowers have anti-implantation, estrogenic, and



abortifacient qualities¹³. The blossoms of *I. parviflora* are used to cure ulcers and whooping cough¹⁰. Herbal preparations are colored with the blossoms of *I. macrothyrsa*[^{21,22,23}]



Fig 9 : IXORA ROOTS

Root's -The roots of *I. coccinea* showed wound Healing and anti - microbial activity. It is also Used as astringent and antiseptic against Scabies and other skin diseases where as the Roots of *I. parviflora* are used in treatment of Menorrhagia¹⁰.The roots of *I. chinensis* are Used in urinary trouble. The decoction is also Given after parturition²². In Indonesia, Decoction of roots is used for bronchial Disorders. *I. macrothyrsa* pacifies vitiated Kapha, pitta, burning sensations, eczema, Ringworm other skin diseases menorrhagia, Leukorrhoea and general weakness. *I. Grandiflora* is used in delivery and Stomachache²².^[24]

INDIAN SYNONYMS OF IXORA COCCINEA

Language	Indian Name In Roman Translation
Marathi	Bakoli , Bakali , Pentgul
Hindi	Rugmini
Sanskrit	Bandhuka , Bandhujiva , Paaranti
Bengali	Rangan, Rongon
Malayalam	Chethi, Thechi, Thetti, Kattuchethi
Tamil	Vedchi, Vetchi
Kannada	Kepala, Kevala, Kisukaare
Telugu	Puttapalachettu, Nooruvarahalu
Odia	Katha Rangani

TABLE 2 : INDIAN NAMES OF IXORA COCCINEA

IXORA COCCINEA MARKETED PRODUCTS AND ITS USES

HAIR CARE PRODUCTS

Hair Oil

Hair Serum

FACE CARE PRODUCTS

Moisturisers

Skin Whitening Cream

Face Mask

Face Serum

GUNGLE GERANIUM HAIR CARE PRODUCTS

The oil is 100% pure and 100% therapeutic grade.

Suitability: It suits all types of hair and skin.



Aromatherapy: Geranium oil is known for its calming rose-like fragrance with mint notes, which helps reduce stress and improve emotional health when used in aromatherapy diffusers, vaporizers, or oil burners.

The oil offers several hair benefits:

- Regulates dryness
- Improves hair growth
- Promotes healthy hair
- Repairs hair damage
- Detangles hair
- Contributes to beautiful, shiny hair



Fig 10 : Geranium Essential Oil



Fig 11 : Detox Hair Serum

GUNGLE GERANIUM SKIN CARE PRODUCTS

Deep Hydration: The formula is intended to moisturize and profoundly hydrate dry skin.

SkinHealth: The components help to relax the skin, lessen hyperpigmentation, and encourage the production of the skin’s natural hyaluronic acid.

Sun Damage: It can help repair sun damage by acting as a night cream.

Skin Types: Sensitive, combination, dry, and dehydrated skin types can all benefit from this therapy. **Certification:** The product has a Cosmos Organic certification





Fig12 : Face Mask



Fig13 : Moisturizer



Fig14 : Baby Oil.



Fig15: Brightening Lotion

Ethnomedicinal Uses –Because of its astringent and anti-inflammatory qualities, *I. coccinea* flowers are frequently used in remedies for women’s health, especially for managing irregular periods and dysmenorrhea. They are also frequently combined with other medicinal plants, such as *Coldenia procumbens*, *Centella asiatica*, and *Madhuca longifolia*, and mixed with coconut oil to create a wound-healing ointment[25].

Adsorptive Removal of Chromium from Simulated Industrial Waste Water Using Jungle Geranium-Derived Biosorbents :

Water contamination brought on by effluents from various process industries is a global concern. These effluents have significant negative effects on the ecosystem because they contain heavy metals that are persistent and non-biodegradable. While some types of pollution can be successfully treated by biological means, persistent substances like heavy metals might provide difficulties, especially at certain quantities. Heavy metal levels in water have increased as a result of several industries and human activities, such as the production of textiles, paper, plating, petrochemical mining, pesticides, and batteries. This has made pollution issues worse by releasing a variety of dangerous organic and inorganic materials into the environment[26]. Chromium is one of the many heavy metals that are widely utilized in mining and industrial processes like electroplating, metal polishing, chromate manufacturing, and leather tanning. A significant amount of solid and liquid chromium-rich waste is produced by mining and industrial operations (the Bureau of Indian Standards indicates that the permitted threshold in drinking water is 0.05 mg L⁻¹)[27,28]. Scanning electron microscopy (SEM), energy dispersive X-ray spectroscopy (EDX), infrared (IR), and X-ray



diffraction (XRD) investigations were used to thoroughly characterize JGLP. Two sets of experiments were conducted: one set focused on higher concentrations without the use of a complexing agent, while the second set used lower amounts. Scanning electron microscopy (SEM), energy dispersive X-ray spectroscopy (EDX), infrared (IR), and X-ray diffraction (XRD) investigations were used to thoroughly characterize JGLP[29].

“IXORA: AJEWEL OF THE LANDSCAPE”–UNVEILINGTHE IMPORTANCE AND BEAUTY OF IXORA PLANTS[30].

Plant description–

They are distinguished by their glossy, dark green foliage and dense, spherical growth habit. The texture of the leaves is usually leathery, simple, and opposite. Ixora flowers have a wide spectrum of colours, from bright red, pink, orange, and yellow to more muted tones like cream and white. In addition to being aesthetically pleasing, Ixora blossoms have a pleasant scent that draws pollinators like hummingbirds and butterflies. These flowers usually bloom all year long, offering a constant show of beauty and colour.

Uses of ixora in landscaping –

Ixora plants have a multitude of uses in landscaping. Here are some of the common uses of Ixora in landscaping:

Ornamental Shrubs : Ixora plants are great decorative shrubs that give hedges, borders, and garden beds a splash of colour. In addition to offering seclusion, its thick foliage creates a lovely background for other plants in the area.

Flowering Borders : Ixora plants are great decorative shrubs that give hedges, borders, and garden beds a splash of colour. In addition to offering seclusion, its thick foliage creates a lovely background for other plants in the area.


Cut Flower Arrangements : Ixora is a good choice for cut flower arrangements because of its long-lasting blossoms. Their vivid hues and wonderful scent can brighten interior areas and infuse your house with a hint of tropical beauty and freshness.

Attracting Wildlife : Butterflies, bees, and hummingbirds are all drawn to Ixora’s vivid blossoms. By adding these plants to your landscape, you can increase the ecological richness of your outdoor area by drawing in and sustaining pollinators





Container Gardening : The compact size and attractive appearance of Ixora plants make them perfect Candidates for container gardening. Placing them in pots or planters allows for easy mobility, making it possible To create stunning arrangements on patios, balconies, or anywhere that lacks garden space.

HERBAL HAIR CREAM: [31]




TABLE3 : Active Pharmaceutical Ingredient

Sr. NO.	Ingredient	Uses	Images
1	Curry Leaves Extract	Stimulates Hair Growth. Strengthening of HairShafts. PreventsHair Thinning. Rejuvenation of Hair Follicles.	



2	Ixora Flower Extract	Promote hair growth. Reduces dandruff formation. Prevent hair loss.	
3	Stearic Acid	Emollient and conditioner. Emulsifier. Thickener and stabilizer. Texture	
4	Shea Butter	Its high content of fatty acids, shea butter is deeply making it a wonderful balm for dry hair	
5	Olive Oil	Soothes the scalp. Controls frizz. Reduces breakage and split ends.	



6	Almond Oil	DIY ingredient. Promoting growth. Preventing split ends. Strength and protection. Scalp health. Deep conditioning	
7	Methyl Paraben	Maintains product efficacy. Extends shelf life. As a preservative to prevent microbial growth. Restores shine and softness	
8	Lanoline	It makes hair softer and smoother by coating the hair shaft. It acts as an emollient to lock in moisture. Beard conditioning. Restores shine and softness.	

DESCRIPTION OF HERBAL HAIR CREAM :

Weigh the required amount of ingredients. Oil phase is prepared by melting beeswax on China dish followed by the addition stearic acid, lanolin, cetyl alcohol, mint oil and almond Oil. Aqueous phase is prepared by dissolving extract of ixora and curry leaves on China dish Followed by the addition triethanolamine and water. Both phases maintained at 70°C. Later Oil phase was added to aqueous phase with constant stirring and required preservatives were Added and smooth cream was formed[31].

Packing of Cream: The prepared cream was packed in a wide mouth bottle with air tight closure.

Future Scope –

- Applications for the Environment and Ornaments Ixora’s ability to withstand stress points to potential uses in landscaping and phytoremediation. Future research could evaluate its potential for developing urban green spaces and absorbing heavy metals.



- Environment and Ornaments *Ixora*'s resilience to stress suggests possible applications in phytoremediation and landscaping. Its potential for creating urban green spaces and absorbing heavy metals should be assessed in future studies.
- Possible Contribution to the Development of New Drugs Isolated compounds may be used as lead molecules in the development of novel medications that target oxidative stress-related diseases, respiratory ailments, inflammatory diseases, and microbial infections.
- Creation of Herbal Cosmetics *Ixora* offers a lot of potential for creating creams, lotions, face packs, hair serums, and anti-aging products because of its antioxidant, skin-soothing, and pigmentation-reducing qualities. For commercial application, future studies can optimize stability, sensory attributes, and constituent ratios. Contribution to the Creation of Novel Medicines The discovery of new drugs that target respiratory conditions, inflammatory diseases, microbial infections, and oxidative stress-related disorders may use isolated compounds as lead molecules.
- Formulations Based on Nanotechnology *Ixora* extracts may improve stability, solubility, skin penetration, and bioavailability when added to hydrogels, liposomes, nanoemulsions, and nanoparticles. This makes it possible to employ it in topical gels, cosmetics, and herbal preparations with controlled release. Of Herbal Cosmetics *Ixora*'s antioxidant, skin-soothing, and pigmentation-reducing properties make it a promising ingredient for making creams, lotions, face packs, hair serums, and anti-aging treatments. Future research can maximize stability, sensory qualities, and ingredient ratios for commercial use. Contribution to the Development of New Drugs Isolated compounds may be used as lead molecules in the development of novel medications that target oxidative stress-related disorders, respiratory ailments, inflammatory diseases, and microbial infections.

II. CONCLUSION

Due to their numerous pharmacological properties, affordability and safety medicinal herbs play a crucial role in modern medicine. Across Asia, *Ixora Coccinea* a widely distributed tropical shrub from the Rubiaceae family, has been utilized for centuries to treat various ailments. This plant possesses significant therapeutic potential, supported by scientific studies, in addition to its horticulture and cultural significance. *Ixora Coccinea* demonstrates anti-inflammatory, anti-ulcer, hepatoprotective, antibacterial, anti-diarrheal, antioxidant and wound healing effects in various contexts. Preclinical studies indicate that it is equally effective as standard medication in preventing liver damage caused by aflatoxins, alleviating stomach ulcers, and managing diarrhoea. In traditional medicinal practices, the flowers, roots, and leaves of *ixora* are employed to address conditions such as dysentery, bronchitis, menstrual irregularities, skin disorder, and gastrointestinal problems.

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