



AN EVIDENCE BASED MEDICINALLY IMPORTANT PLANT BHRINGRAJ (*Eclipta alba*) IN THE MANAGEMENT OF PANDU ROGA

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ABSTRACT

Eclipta prostrata or *Eclipta alba*, also known as bhringraj, is a well-known plant used to treat liver problems and promote hair growth. In addition, it works well for conditions affecting the eyes, skin, cough, asthma, and any head-related illness. It enhances liver functions, lessens constipation, corrects digestion, and boosts metabolism in addition to increasing bile production from the liver. As a result of its deepan pachan characteristics, Bhringraj's Yakrutottejaka property has the great impact of maintaining pitta, lowering the samata of vimargag pitta, and increasing agnibala. By forming uttam rasa dhatu and uttarottar dhatu poshan, these characteristics aid in the sampraptivighatan of pandu and serve to prevent such negative side effects of contemporary medications. As a result, this medication helps to relieve dhatuwardhan's dhatushaithilya and other Pandurog signs and symptoms. It is also a simple, affordable, and single-drug therapy. The most typical cause of this ailment is pandurog. The primary lakshanas in Pandurog are Twak-nakh-netra panduta, daurbalya, shram, shwas, and hrutspandan. These symptoms resemble those of anemia. We employed Bhringraj Panchang Churna for Panduroga Chikitsa in this study and looked at the impact on lakshanas in relation to haemoglobin Percentage.

Keywords – Bhringraj, Panduroga, Haemoglobin, etc.

INTRODUCTION

According to World Health Organisation (WHO). These are two billion people with Anemia in the world and half of the anemia is due to iron deficiencies. The Prevalence of anemia in India was 70% in children aged 6-59 months, 55% in female aged 15-49 years, and 24% in males aged 15-49 years. So we select the study of Bhringraj Swaras on Pandu Roga.¹

Iron Deficiency Anaemia (IDA) is the most common nutritional deficiency worldwide. Anaemia refers to a state in which the level of hemoglobin in the blood is below the normal range appropriate for age and sex. Other factors, including pregnancy and altitude, also affect haemoglobin levels and must be taken into account when considering whether an individual with anaemia causes more profound symptoms than a gradually developing anaemia. Anemia is a condition in which there is a deficiency of Red Blood Cells or of Hemoglobin in blood, resulting in pallor and weakness. The nearest correlation of iron deficiency anemia can be made with Pandu Rog in Ayurveda. IDA is very common prevalent disease in the society and the side effects of oral allopathic iron preparation are very common, therefore to get a better alternative, an Ayurvedic Herbomineral medicine, Bhringraj will be subjected to a clinical trial in patient. A simple juice made with bhringraj leaves Anemia may be very effective in anaemia.²

As Acharya Bhavaparkash has maintained it as "Pandunut" is also mentioned in Kaidiva Nighantu. Signs & symptoms of Pandu, Aruchi, Gatra Shool, Jawar.³

In Bhav Prakash Nigantu, Kaiydev Nigantu, etc., many references are given about Bhringraj, used for maintaining healthy & prosperous life. Bhringraj is a kesh vardhan herb mentioned in ancient texts. Bhringraj has multifarious qualities and 2 ameliorate properties, improves the immune system and can prevent & relieve the symptoms of Pandu Rog.⁴

Therefore, Bhringraj as kesh vardhan & Pandunut having other therapeutic values can be selected to evaluate its role to control Pandu Roga and reducing other symptoms of Pandu Roga it may be a great success for Pandu Roga W.S.R iron deficiency Anemia. So present study is to evaluate the efficiency of Bhringraj in Pandu Roga.⁵

AIMS AND OBJECTIVES:

1. Study of both ancient and modern literature of Bhringraj.
2. To study the Pharmacognosy of Bhringraj.
3. To study the efficacy of Bhringraj in the management of Pandu Roga (Iron Deficiency Anemia).

METHODOLOGY

The present research work has been placed under following headings -

Review of Literature of Bhringraj.

- In ancient texts like Veda, Kalpa sutra, Purana, etc.
- In different Samhita grantha and Nighantus.

- In modern literature (books, articles, websites etc.)

Materials and Methods

- Collection of genuine samples of Bhringraj from its natural habitat.
- Pharmacognostical study.
- Physicochemical, Phytochemical and Chromatographic study.

Drug Review

Historical Background

From medical history one can know about recognition of the continuity of medical thoughts. It tells us about the conception and misconceptions of the past from which one can draw inferences for the present and future times History of any drug gives insight into its, morphology, properties and therapeutic or dietary utility as conceived by various authors at different stages of the history

Vedic Period

Bhringraj is well known drug from ancient period. In Atharved Maharshi Sayana has mentioned it in the treatment of Kustha and Palit. This indicates that the Keshya property of Bhringraj was well known from this period.

Samhita Period

Charak Samhita:

In this text of Ayurveda, Acharya Charaka has mentioned this drug in various places. In Kaphaj Kasa chikitsa Bhringraj mentioned as one of the ingredients of Kasmardadi yoga (Ca. Chi. - 18/117). He also stated that Markav is useful in the treatment of Raktapitta as one of the ingredients of Raktapittanashaka yoga and Krimihar dravya in the form of Prkritivighat chikitsa (Ca. Chi.- 4/68, V.7/21). In (Ca. Chi. 26/264) Acarya Carak has clearly indicated Bhringraj for the treatment of Khalitya and Palitya.He also stated Bhringraj is the ingredients of 'Sahacharadi Taila' and 'Mahanil Taila' which are mostly used in form of Nasya in the treatment of Palitya. Bhringraj is also used as a Ahaharkalpana in the form of Rohandipanorag (Ca. Chi. 24/181). In Kalpasthana Bhringraj is also used in Vamana and Virechana yoga (Ca. K. 7).

Susruta Samhita:

Acharya Susruta has mentioned In Chikitsa and Kalpasthana Bhringraj is used in the treatment of Khalitya and Palitya and he proved its Keshya activity (Su. Chi. 25/28-32; Ka. 8/54). Susruta also stated its Vishahar property and it's used in the diseases like Nadivrana, Ashmari Roga, Swasa, Kasa, Vataj Swarabheda (Su. Chi. 7/24, 17/42). Likewise in Susruta Samhita description of drug Bhringraj is available at 9 references. It is described as term Markav at 4 Place.

Kashyapa Samhita:

Kashyapa has described the drug Bhringraj for Netraroga in the form of Aschyotana and Pralepa (Netraroga / 19-22).

Harit Samhita:

In this Samhita, Acarya Harit has mentioned the drug Bhringraj with the help of synonymes like Markav, Bhringarak and Bhring in 14 various Kalpanas as an ingredients of it. He also stated Bhringraj is used in form of Lepa in Indralupta and Kustharoga (H.43/6-7). He again mentaioned Bhringraj is one of the ingredients of Shadbindu Taila (H.40/25).

Sharangdhara Samhita:

Bhringraj is used for the treatment of Khalitya & Palitya in the different forms such like Nilikadhya Tail, Bhringraj Tail, Ayashchurnadilepa, Triphladi lepa, Nimbabija Tail, etc. (Sa. M. 10, 11). It is also used for the Shodhan of Shilajatu (Sa. M. 12/86). Bruhadnmanjisthadi Kwatha is used for the treatment of Kustha, Vatarakta, Updansh, etc. and Bhringraj is one of the ingredients of this Kwatha. (Sh. M. 2/117-122). It is also used for the Netraroga in theform of Triphla Ghril (Sh. M. 9/66-70). There are total 10 references found in Sharangdhara Samhita. Synonyms used for Bhringraj are Bhring, Markav, etc.

Bhavaprakash Samhita:

In Kshudrarog Chikitsa, Bhringraj is mentioned for the treatment of Palitya & Khalitya in the form of Triphaladi Lepa, Kashamaryadi Tail and Gunjadi Tail. (B. P. M. 62/4, 5, 18). Bhringraj is one ingredient of Shadbindu Tail for the treatment of Shiroroga and Urdhvajatrugataroga (B. P. M. 63/39). In Arsharoga Chikitsa Bhringraj is mention in the form of Shankarloha (B. P. M. 5/109). He also says that Bhringraj Swarasa is useful in Suryavartaroga with Aja dugha in the form of Nasya.

TAXONOMY

Kingdom	Plantae
Division	Spermatophyta
Subdivision	Angiosperma
Class	Dicotyledoneae
Subclass	Gamopetalae
Group	Inferae
Family	Compositae
Genus	Eclipta
Species	Alba
Synonyms	Eclipta prostate

Synonyms

Bhringraj, Bhringraj, Markav, Bhringha, Bhring, Keshranjan, Pitripriya, Keshya, Patang, Marker, Marker, Mark

CHARACTER

Leaves – Mahanil

Flower – Neelpushpa, Bhringraj, Bhringrenu, Ekraj

Stem – Lomash

APPEARANCE

Bhringraj Angarak Bhringsodar Bhringarak Meshaksha Mahabhring

PROPERTIES

Markar Bhring Keshya Markar

Mark Bhringar Devpriya Paran Vandniya Paras Sujagar Haripriya USES

Keshranjan Pitripriya Nagmar Kuntalvardhan Keshraj Shyamal Karanjak Ajagar

Character	E. Alba	W. Calendulacea
Family	Asteraceae	Asteraceae
Habit	Erect or spreading annual herb	Erect perennial herb
Stem	Pubescent	Glabrous
Leaf	Linner to oblong lanceolate, turning black on drying	Head, 2-3cm, Solitary.
Fruit	Achene, black, 2-2.5mm long, bconical, compressed, narrowly winged, ridges on oneside	Achene, obovate, triangular, glabrous, Faintly ribbed
Stomata	Anisocytic	Anisocytic
Stomatal Index	30-34	Not reported
Upper surface		
Lower surface	33-38	Not reported
Trichomes of leaf, stem and flowers	Small, multi cellullar, long large, tip pointed, thickwalled, wall rough	Absent
Stem fibers	325 to 500 u long.	Present but not measured

Calcium oxalate crystals	Needle	Absent
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RASAPANCHAKA OF BHRINGRAJ

Some substance act in accordance with their tastes, others in accordance with their potency and yet other in accordance with their qualities or post digestive effect or specific action. Maharsi Susruta has stated that the decrease, increase and equilibrium of the dosas are dependent on Rasapanchaka (Su. Su. 40/16-17). Thus the action of a drug is completely based on the Rasapanchaka of that drug.¹⁰

The different opinions of authors regarding the Rasapanchaka have been presented in tabular form in the following table:

RASA (Granthik)

Rasa	D.N.	R.N.	M.N.	K.N.	BP.N.	A.N.	N.R.	P.V.S.	S.K.	V.S.S.
Tikta	+	+	+	+	+	+	+	+	+	+
Katu	-	-	+	+	+	-	+	+	+	+
	-	-	-	-	-	-	-	-	-	-

GUNA

Guna	D.N.	R.N.	M.N.	K.N.	BP.N.	A.N.	N.R.	N.K.	P.V.S.	S.K.	V.S.S.
Ruksha	+	-	+	+	+	+	+	-	-	+	+
Ushna	+	+	+	+	+	+	+	+	-	+	+
Tiksna	-	-	-	-	-	-	+	-	-	-	-
Laghu	-	-	-	-	-	-	-	-	+	-	-

VIRYA

VIRYA	D.N.	R.N.	M.N.	K.N.	BP.N.	A.N.	N.R.	P.V.S.	S.K.	V.S.S.
Ushna	+	+	+	+	+	+	+	+	+	+
Shita	-	-	-	-	-	-	-	-	-	-

VIPAKA

VIPAKA	D.N.	R.N.	M.N.	K.N.	BP.N.	A.N.	N.R.	P.V.S.	S.K.	V.S.S.
Madhur	-	-	-	-	-	-	-	-	-	-
Amla	-	-	-	-	-	-	-	-	-	-
Katu	-	-	-	-	+	-	+	+	+	-

ETHNOMEDICAL USES

The plant is valued not only in India but also in number of other neighbouring countries like Indonesia, China, Taiwan, Thailand etc.¹¹ As per the disease its ethnomedical uses are listed below, along with name of the country and part of plant used in the bracket-

1. Antiasthmatic : Dry (Ar-Thailand) powder is taken.
2. Antidiabetic : Decoction (Hb-Taiwan) is used orally.
3. Anti-inflammatory : Decoction (Hb- Bihar, india) along with black peper and raw sugar is taken orally as an anti-nflammatory drug.
4. Antileprotic : Decoction (Hb-india) is used alone orally as antileprotic while inother parts (Bundelkhand, india) hot water extract with other four herbs is used orally. In Somalia they crush the entire plant, mix it with oil and apply externally.
5. Antioedemic : Leaf paste along with salt is applied externally by the people of Anantpur (A. P., india) on oedema of te legs.
6. Bronchitis : Decoction (Hb-india) is uaed orally by tribal people of Ujjain.
7. Cholagogue : Decoction (Ar- Arab countries) is used orally.
8. Emetic : Decoction (Ar- Arab countries; Lf- Nigeria) are used orally.
9. Eye diseases : Decoction (Hb- Ujain, india) is used externally in eye diseases. Leaf juice with honey is used orally by tribal people of Katra(J&K, india) in catarrhal -disorders.
10. Haemostatic : Decoction (Hb-China) is used orally.
11. Headache : Tribal people of Rayalseema (A.P., india) and others apply extract of the bud and the herb respectively in sesame oil externally on forehead.
12. Hepatitis : Decoction (Hb- Bangladesh and Taiwan) is used orally. Hot water extract with other three herbs is used orally in Tirupati(A. .,india) 4 gm thricea dayin divided doses for infective hepatitis in children.
13. Haircare : Tribal people of Katra (J&K, india) apply leaf juice with neem oil for the growth of hair while people of Japan apply water extract of the herb externally for this purpose . Chenchu tribe(A. P., india) uses juice of plant with coconut oil externally as hair tonic. People in Tamilnadu use fresh unripe fruit juice with other herbs in olive oil externally to prevent premature greyingof hair. Kani tribal people (Kerala, india) use leaf extract boiled with coconut oil to deepen black colour of the hair and to promote their growth.

14. Jaundice : In Arab countries leaf juice is used orally as hepatic tonic. In Tamilnad (India) people use fresh juice of leaves, In Dandakarnya (India) they use herb orally in case of jaundice. People in India also apply paste of root and seeds of *Ricinus communis* near eyes in case of jaundice. They use root juice orally in liver complaints in N. Gujarat (India). People in Cananore (Kerala, India) use leaf with other herbs orally in case of jaundice. Tribal people of Chittoor (A.P., India) use dry powder of the herb orally, 4 gm for a week to cure jaundice and along with *P. amarus* to rejuvenate the liver. In Rayaseema (A.P., India) they use juice of the herb with butter milk and curd twice a day orally, but no salt in case of jaundice

15. Skin disease : The roots of the plant with other herbs are used externally for cow as an antiseptic in Ujjain (M.P., India). Decoction (Hb- India) in combination with other plants is taken orally in elephantitis. A paste of the herb (India) with other plants in sesame oil is applied externally in elephantitis. People of Kondh tribe (Orissa, India) use paste of plant externally in case of ring worm lesions. People of Rayalseema (A.P., India) use fresh juice of the plant externally in skin diseases. People use decoction (Hb- Somalia) externally in skin infection and vesicles in the skin. They use juice (Lf- Nepal) externally in wound healing

16. Spleen disorder : People in Katra (J&K, India) use leaf juice with honey orally.

17. Tonic : Decoction (Hb- Arab countries) is taken orally.

18. Toothache : Paste of the plant (India) in sesame oil is applied externally.

19. Purgative : Decoction (Ar-Arab countries and Lf-Nigeria) are used orally as purgative and laxative respectively.

20. Safe delivery (Prevention of miscarriage) : 10 to 15 ml juice of herb with cow's milk per day is taken orally from early days of pregnancy to prevent miscarriage and to have safe delivery.

PHARMACOLOGICAL ACTIONS OF BHRINGRAJ

Eclipta alba is reported to have different types of biological activities on different animals and tissues at different dose levels. These activities are produced by various types of extracts obtained from different parts of the plant.¹²

Antibacterial Activity:

- ❖ Alcoholic extract (Ar-Iraq) of *eclipta alba* was found to be an antibacterial agent against *E. Coli* and *Staphylococcus*.
- ❖ Chloroform and methanolic extracts of the plant are active against *Bacillus subtilis*, *E. Coli*, *Staphylococcus* at 1.0 g/ml
- ❖ Seeds (India) of the herb when placed on nutrient media have activity against *B. subtilis*, *E. coli*.

Anti fungal activity :

- ❖ Ethanol extract (Ar-India) is active against *Helminthosporium* Ethanol extract (Hb- turicum. Suriname) is inactive against *Aspergillus niger* at 50 mg/ml conc.

Antiviral activity:

- ❖ Alcoholic extract of Plant reported to possess antiviral activity against Ranikhet diseases virus.
- ❖ Alcohol extract has weak activity against Herpes Simplex at 10mg/ml concentration.
- ❖ Decoction (Hb-China) is active against Herpes simplex type 1 at conc. of 100mg/ml by cell culture method.

Antispasmodic activity:

- ❖ Alcohol: Water (1:1) extract has antispasmodic activity on guinea pig ileum.
- ❖ Decoction has antihistaminic activity at 1.0g/kg/gastric intubation in rats.

Activity on blood:

- ❖ Water extract of the plant 1.0 g / kg has a haemostatic activity in mouse.
- ❖ Hot water extract (Hb-Nepal) has antipyretic activity at 500 mg/kg gastric intubation in male mouse.

Cytotoxic activity:

- ❖ Methanol extract of the herb is active against Ca- Ehrlich Ascites cell culture at 1.25 mg/ml.
- ❖ Water extract (Ar-China) is inactive at 500 mcg/ml versus CAMammary microalveolar cell culture.

DOSE FIXATION

Maharsi Kasyapa has stated that dose is an important point in the treatment. An adequate dose of the drug should be decided, considering the digestive power, season, tolerance, condition of the body, nature of bowel, age, strength, constitution and temperament, drug as such and up and down of dosas (Ka. Khi. 3/101). Hence the dose may be so regulated that the drug produce the desired effect but may not to harmful the tissues.¹³

The Dose of Bhringraj can be fixed as follows:

Juice: 3-6 ml.

Decoction: 12-36gm powder.

Churna: 3-5gm.

(Acc. To 'The Ayurvedic Pharmacopeia of India Part-1, Vol.-II, I.S.M. and H. New Delhi)

PANCABHAUTIC CONSTITUTION OF BHRINGRAJ

RASA- According to Ayurvedic literatures Bhringraj possess Katu and Tikta rasa.

Rasa	Mahabhuta	Dominance
Tikta	Vayu,	Akas
Katu	Vayu,	Agni

GUNA- Most of the authors have indicated Ruksa, Usna and Tikсна guna.

Guna	Mahabhuta	Dominance
Ruksa	Agni, Vayu,	Prthvi
Usna	Agni	Tikсна, Agni

VIRYA- All the Acarys have mentioned Usna virya which indicates Agni Mahabhtapredominance.

VIPAKA All the Acarys have indicates its Vipaka as Katu which Indicates Vayu and Agni Mahabhuta dominance. Hence from above tabulation it can be concluded that in Bhringraj Agni Mahabhuta takes major part in its formulation. Vayu and Akas are complementary.¹⁴

CULTIVATION, COLLECTION AND STORAGE

Cultivation of the drug Bhringraj is not needed, because it is very common weed of the rainy season growing gregariously on waste place. Bhringraj is annual weed hence complete their life history within same year. In this condition, cultivation may be useful.¹⁵

HARVESTING:

The crop of Bhringraj usually becomes ready for harvesting within three months. When the colour of the plant becomes black and the fruit are about become toripened, then the crop should be harvested. The whole plant should be uprooted along with roots and after washing it should be dried in shadow and store properly¹⁶

STORAGE

Acarya Carak says that culled herb should be placed in sutible vessles, they should be stored in a room which is windless (Ca. Ka. 1/11). Physical as well as chemical changes, enzymetic changes, yeast, bacteria, fungal infection are the factors which deccreas the potency of Curna. Hence it is advisable to keep the Curne of Bhringraj in the vaccum container so as to avoid contact of these affecting factors with Curna.¹⁷

SUBSTITUTE AND ADULTRANTS

Wedelia calendulacea Less (asteraceae) knowen as Pitabharangi in north india, Kesraaja in W. Bengal and Manjal krisali in Tamilnadu is used as a substitute in eastern and southern india respectively. It has yellow flowers and smooth lanceolate leaves of light green colour. (Illustrated Mannual of Herbal Drugs used in Ayurveda by Y. K. Sarin, CCRIS) The herb is a substitute for Dhaval or Narasala (Lobelia nicotianacfolia) which is used as a substitute for Indian tobacco (L. inflata) a medicinal drug. The root has been recommended as an excellent substitue for that of Dandelion (Taraxacum officinale). Wedelia calendulacea leaves are adultrated in Bhringraj. (Substitute and Adultrant Plants by Sunita Garg.)¹⁸

DISCUSSION

It possesses deepan, pachan, and rasayan properties because of katu-tikta rasa and ushna virya of bhringraj, which raises one's hunger and lowers vimargag pitta samata6. Bhringraj's ushna virya and katu-tikta rasa give it a yakrutottejak quality. Yakrut is a ranjak pitta mula sthan that performs ranjan of rasa dhatu for the production of rakta dhatu. Therefore, there can be a decrease in Panduta (pallor). As a result of ushnavirya's shothahara

property, akshikutashotha is lessened. Due to a little rise in Hb%, the body may naturally not be able to meet its oxygen needs. Thus, hrutspandan somewhat declines. Rasayan dravya is how Bhringraj is referred to. It may be used as a tonic naturally, and it significantly improves the patient's daurbalya. Rasayan dravya is how Bhringraj is referred to. It may be used as a tonic naturally, and it significantly improves the patient's daurbalya. Due to its ushna virya⁷, Bhringraj is claimed to have "vatahara" properties. It can be seen to have a major impact in decreasing Gatrashool in this way.¹⁹

Charakacharya asserts that hetusewan leads to tridosh prakop. They arrive on Hruday, and with the aid of vyan vayu prakupit pittadi doshas, they spread across Dashdhamani, causing Rasavahastrotodushti as well as Sadhak and Pachak Pitta Dushti. Then prakupit pitta spreads throughout the body, resulting in dhatushaithilya. In the end, this results in the kshaya of Rakta and Meda dhatu, giving rise to Panduroga³. Panduroga was referred to as a rasapradoshaj vyadhi by Acharya Charak and Acharya Vagbhat. Acharya Sushrut claims that it is a raktapradoshaj vyadhi⁴. Yakrut and Pleeha are the Moolasthanas of the Raktavaha strotas. Ranjak Pitta also performs ranjan karma of rasa dhatu for the creation of raktadhatu in yakru.²⁰

CONCLUSION

Bhringraj has not been included or classified by any author of Brihatrayi but along with the description of Khalitya many other Kshudraroga are mentioned with therapeutic formulations containing Bhringraj. Only Astang Hridayakara has reported the Bhringraj as Rasayana dravya. All Nighantukara have narrated this Bhringraj as Keshya and Rasayana dravya. This drug is highlighted as Hepato protective in almost all the modern texts. Ayurvedic texts attribute here about 40 synonyms like Markava, HariPRIYA, Ekraj etc. Classic refers to Tikta, Katu Rasa; Ruksha, Ushna Guna; Ushna virya; Katu Vipak and VataKaphhara property of the plant. Test threshold was elicited by cold water method –320, by hot water method –280 and after 6 hrs. Boiling – 300. The test suggested Tikta- Katu Rasa. Ayurvedic classic have highlighted the wide range of therapeutic properties of the plant and have been mentioned in Kasa, Swasa, Kushtha, Pandu, Krimiroga etc. Astang Samgrahakara has described first time the cardinal symptom and varieties of Khalitya. Madhukosh comentrator Kartikeya was the first author who has mentioned the difference of Khalitya from Indralupta and Ruhya. The dominance of Vata-Pitta Dosha was found in most of the patients favoring the classical literature. Pandu roga is Pitta pradhana vyadhi, Pitta is responsible for the normal colour of the body but when it get vitiated, the Rakta as it happens in Pandu roga and thus loss of complexion or Panduta occurs. Pandu roga is also considered as Santarpanjanya vyadhi, which broadly means Anabolism, brings about an increase in kapha which in term may cause the disease by generating Aan and Mandagni (Cha. Su.23/5). Thus, any diet which may increase kapha o any disease associated with increase in kapha can cause a change in complexion or Pandu roga.

CONFLICT OF INTEREST –NIL

SOURCE OF SUPPORT –NIL

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