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Research Article

STUDIES ON HERBAL DRUGS USED IN LOCAL HEALTH TRADITIONS IN THE ARAVALLI HILLS OF GURUGRAM DISTRICT, HARYANA

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ABSTRACT

The Aravalli Hills of Gurugram district, Haryana, harbor a rich tradition of utilizing herbal drugs in local healthcare practices. This study aimed to document and analyze the ethnomedicinal knowledge of the local communities residing in the vicinity of these hills. Through extensive field surveys and interviews with traditional healers, 58 plant species belonging to 32 families were recorded, with their diverse therapeutic applications in 120 disease conditions. The study revealed a strong correlation between local health traditions (LHTs) and classical Ayurvedic texts, highlighting the enduring relevance of traditional knowledge in contemporary healthcare. Furthermore, the documentation of several extra-pharmacopoeial plants and novel medicinal indications underscores the potential of LHTs in contributing to the discovery of new therapeutic agents. The findings emphasize the urgent need for conservation and sustainable utilization of medicinal plant resources and the preservation of traditional knowledge for future generations.

KEYWORDS

Ethnomedicine, Flora, Healthcare, Local health traditions, Survey

INTRODUCTION

The use of medicinal plants for healthcare has been an integral part of human civilization since time immemorial. Traditional medical systems, such as Ayurveda, have evolved over centuries, incorporating the

empirical knowledge of local communities about the therapeutic properties of plants. The Aravalli Hills, a prominent geographical feature in the Gurugram district of Haryana, India, are home to a diverse range of plant species, many of which have been traditionally used by the local inhabitants for their healthcare needs. However, with the advent of modern medicine and rapid urbanization, this traditional knowledge is at risk of being lost. The present study aimed to document and analyze the herbal drugs used in local health traditions (LHTs) in the Aravalli Hills of Gurugram district, with a focus on their therapeutic applications, modes of preparation, and cultural significance.

MATERIALS AND METHODS

The study was conducted in 60 villages located within a 3 km radius of the Aravalli Hills in Gurugram district. The study area encompasses a diverse range of habitats, including sand dunes, sandy plains, alluvial plains, open forests, scrublands, salt-affected areas, lowlands, lakes, hills, and pediments. The climate is semi-arid, with an average annual rainfall of 618 mm. The vegetation is predominantly northern tropical dry deciduous, with a rich diversity of plant species.

The study employed a mixed-method approach, combining field surveys, interviews with traditional healers, and literature review. Field surveys were conducted to identify and collect plant specimens used in LHTs. Traditional healers and knowledgeable individuals from the local communities were interviewed using a semi-structured questionnaire to gather information about the medicinal uses of plants, their modes of preparation, dosage, and administration. The collected plant specimens were identified with the help of taxonomists and preserved as herbarium specimens. The information gathered from the field surveys and interviews was analyzed and compared with the available literature on Ayurvedic medicine and ethnobotany.

RESULTS

The study documented 58 plant species belonging to 32 families that are used in LHTs in the Aravalli Hills of Gurugram district. The most commonly used families were Fabaceae (7 species), Acanthaceae (4 species), Asteraceae (4 species), and Solanaceae (4 species). The majority of the plants were herbs (24 species), followed by trees (14 species), shrubs (10 species), climbers (7 species), and under-shrubs (4 species). The most frequently used plant parts were leaves (35 species) and the whole plant (26 species).

The study recorded a total of 120 disease conditions that are treated using herbal remedies in the study area. The most common ailments treated were related to the integumentary system (38 species), followed by the digestive system (34 species), reproductive system (29 species), and urinary system (26 species). The most common modes of preparation were paste (41 species), decoction (37 species), and powder (29 species). The majority of the preparations were administered orally (64%), followed by external application (36%).

The study also documented the use of 19 plant species in veterinary practices in the study area. The most common ailments treated in livestock were related to wound healing, digestive problems, and reproductive disorders.

Ethno-medicinal plants used with Disease indications in LHTs.

Sr. No.	Local Name	Botanical Name	Family	Habit	Part used	Therapeutic preparations	Route of administration	Disease indications in LHTs
1.	<i>Khair ī</i>	<i>Acacia Senegal</i> L. Willd.	Fabaceae	T.	Bk, Fl Gm, Lf, New Sprouts	Twigs, Decoction, Paste, Powder	Oral, Local	Conjunctivitis, Stomatitis, Dysentery, Growth Retardatio, Postpartum Recovery, Uterine Prolapse, Infertility, Spermatorrhoea, Dryness & Itching of Skin Veterinary use- Fodder, Bark decoction for washing prolapsed uterus
2.	<i>Olkān ṭā</i>	<i>Achyranthes aspera</i> L.	Amaranthaceae	H.	Lf, Rt, Wp, St	Paste, Tooth Brush, Decoction, Powder, Ash	Oral, Local	Wound Healing, Oro- Dental Hygiene, Dental Pain, Dental Carries, Cough, Pneumonia, Loss of Appetite,

								Snake Bite, Pyorrhoea
3.	<i>Bāsā</i>	<i>Adhatoda vasica</i> Nees	Acanthaceae	Sh.	Lf, Wp	Decoction, Paste, Hot Infusion	Oral, Local	Chronic Cough, Dermatitis, Fever
4.	<i>Kāñṭācaulāi</i>	<i>Amaranthus spinosus</i> L.	Amaranthaceae	H.	Rt, Lf, Wp, Mature Inflorescence Spike	Paste, Gruel, Juice, Water Extract, Powder	Oral	Burning Micturition, UTI, Gastric Upsets, Constipation, Insect Bite, Urinary Obstructions, Renal Calculi, Abdominal Distention, Flatulence
5.	<i>Dhauka</i>	<i>Anogeissus pendula</i> Edgew.	Combretaceae	T.	Bk, Lf, Mature Fruits	Powder, Decoction	Local	Wound Healing, Malaria, Urinary Obstruction
6.	<i>Śtābara</i>	<i>Asparagus racemosus</i> Willd.	Liliaceae	Cl.	Tuber	Powder, Water Extract	Oral	General Debility, Galactagogue, Nourishment, Aphrodisiac, Dyspepsia Veterinary use

								- As Galactagogue
7.	<i>Pyājā</i>	<i>Asphodelus tenuifolius</i> Cav.	Asphodelaceae	H.	Sd, Wp,	Fumes, Decoction, Paste, Paultice, Juice	Oral, Local	Dental Carries and Pain, Traumatic Inflammations, Piles
8.	<i>Hiṅgū ā, Hiṅgū ṭa</i>	<i>Balanites roxburghii</i> Planchon	Zygophyllaceae	Sh	Sd, Fr Mesocarp, Bk	Oily Extract, Paste, Powder, Water Extract	Oral, Local	Wound Healing, Whooping Cough, Chronic Cough, Hair Growth, Hair Fall, Pediculosis Veterinary use – conjunctivitis
9.	<i>Piyāb āsā</i>	<i>Barleria prionitis</i> L.	Acanthaceae	H.	Wp, Lf	Ash, Juice	Oral, Local	Chronic Cough, Pyorrhoea, Cold and Cough, Skin Eruption in Herpes, Piles
10.	<i>Haḍju ḍa</i>	<i>Blepharistis maderaspatensis</i> (L.)	Acanthaceae	H.	Wp	Water Extract, Paste	Oral, Local	Bone Fracture, Musculo-Skeletal Pain, Seizures Veterinary use

		Heyne ex Roth						- inflammations after trauma
11.	<i>Gugḡ aḷa</i>	<i>Boswelli a serrata</i> Roxb.	Burserac eae	T.	Gm, Bk	Paste, Fumes, Powder, Cold Infusion	Oral, Local	Musculoskelet al Pains, Bone Fracture, Ear Maggots, Joint Pain, Inflammation in Arthritis, Heat Stroke, Burn Injury, Loss of Sensation Veterinary use - fomentation to cure mastitis
12.	<i>Dhāk a</i>	<i>Butea monospe rma</i> (Lam.) Taub.	Fabacea e	T.	Bk, Fl, Lf, Gm	Fomentation, Powder, Decoction, Hot Infusion, Poultice	Oral, Local	Pain And Inflammations, Postpartum Uterine Prolapse, Backache, Uterine Prolapse, Habitual Abortions, Loss of Sensation Veterinary – wound healing

13.	<i>Kaira, Jāla, īñṭa</i>	<i>Capparis decidua</i> (Forssk.) Edgew.	Capparidaceae	Sh	Tender Sprouts, Fr, Fl,	Decoction, Paste, Chewed, Powder	Oral, Local	Jaundice, Dental Pain and Dental Carries, Worm Infestation, Loss of Appetite, Mumps Veterinary use - Worm infestation
14.	<i>Kāñfū ī</i>	<i>Cardiospermum halicacabum</i> L.	Sapindaceae	Cl.	Lf, Rt	Juice, Paste, Decoction	Oral, Local	Rheumatic Fever, Allergic Skin Eruptions, Insect Bite, Dysmenorrhea
15.	<i>Jaṅga lī karau ṅdā</i>	<i>Carissa spinarum</i> L.	Apocynaceae	Sh.	Fr, Fl, Bk, Rt	Vegetable, Pickle, Śrbata, Decoction, Powder	Oral, Local	Dietary Use, Hyperacidity, Gastritis, Piles, Stomatitis, Leucorrhoea
16.	<i>Karvā rā, Karvā lā</i>	<i>Cassia fistula</i> L.	Fabaceae	T.	Fr, Bk, Lf	Decoction, Paste, Decoction, Hot Water Infusion	Oral, Local	Abdominal Colic, Skin Infections, Boils, Abscess, Insect Bite
17.	<i>Kasau ṅdī</i>	<i>Cassia sophera</i> L.	Fabaceae	H.	Sd, Lf, Wp, Fr	Decoction, Paste, Powder	Oral, Local	Boils, Abscess, Loss of Appetite, Dog bite, Snake Bite Veterinary – Uterine Prolapse

18.	<i>Arnai</i>	<i>Clerodendrum phlomidis</i> L.	Verbinaceae	Sh.	Fr, Lf, Rt, Sd	Fumes, Paste, Poultice, Powder	Inhalation, Local, Oral	Dyspnoea, Asthma, Urticaria, Insect Bite, Frozen Shoulder, Sore Throat Veterinary use - foot and mouth diseases
19.	<i>Hirankhuri</i>	<i>Convolvulus arvensis</i> L.	Convolvulaceae	Cl.	Lf, Fl, Wp	Juice, Hot Infusion, Decoction	Oral	UTI, Allergic Skin Diseases, Constipation, Fever, Impotence Veterinary use - foot and mouth diseases
20.	<i>Shankhpushpi</i>	<i>Convolvulus prostratus</i> Forsk.	Convolvulaceae	H.	Wp, Lf	Decoction, Juice, Paste	Oral	Fever, Insomnia, Neuro-tonic, Brain Tonic, Indigestion
21.	<i>Guhavra</i>	<i>Conyzabonariensis</i> L.	Asteraceae	H.	Lf, Rt	Juice, Paste	Oral, Local	Diarrhoea, Vomiting, Headache
22.	<i>Kurajida, Baphali</i>	<i>Corchorus depressus</i> L.	Tiliaceae	H.	Wp, Lf, Sd	Powder, Paste, Water Extract,	Local, Oral	Contusions, Musculo-Skeletal Pains, Bone Fracture, Female Infertility, Leukoderma,

								General Health Tonic
23.	<i>Barañā</i>	<i>Crataeva nurvala</i> Buch.	Capparidaceae	T.	Bk, Lf	Decoction, Powder, Paste	Oral, Local	Renal Calculi, UTI, BPH, Ascites, Vomiting, Gastritis
24.	<i>Amba rbela</i>	<i>Cuscuta reflexa</i> Roxb.	Cuscutaceae	Cl.	Wp, St,	Juice, Paste, Cold Water Infusion, Decoction	Local, Oral, Bathing	Jaundice, Headache, Skin Diseases, Scabies, Stomatitis Veterinary use - Foot and Mouth disease, jaundice, dysentery
25.	<i>Biseñdu / Piseñdu</i>	<i>Diospyros montana</i> Roxb.	Ebenaceae	T.	Lf, Fr, Bk	Paste, Juice, Decoction	Local, Oral	Boils, Abscess, Earache, Spider Bite, Fever Veterinary use - Worm infestation
26.	<i>Gāda ḍā kī pyāja / Pahā ḍī pyāja</i>	<i>Dipcadi serotinum</i> (L.) Medik	Hyacinthaceae	H.	Bulb	Paste, Juice	Oral, Local, Drops, Instilled In Eye	Cough And Cold, Fever, Pruritis, Dermatitis, Improves Eyesight, Piles Veterinary – <i>Nasya</i> for Fever

27.	<i>Uñta Kaṭail ā</i>	<i>Echinops echinatus</i> Roxb.	Asteraceae	H.	Rt, Wp	Paste, Water Extract, Garland, Decoction, Powder	Local, Oral	Fungal Infections, Vitiligo, Jaundice, Labor Pain, Impotence Veterinary use - digestive problems
28.	<i>Patthara-caṭṭā</i>	<i>Elytraria acaulis</i> (L.f.) Lindau	Acanthaceae	H.	Wp, Lf, Inflorescence Spike	Paste, Juice	Oral, Local	Mumps, Renal Calculi, Diarrhoea
29.	<i>Phulḍī</i>	<i>Evolvulus alsinoides</i> L.	Convolvulaceae	H.	Wp	Paste, Decoction, Juice		Headache, Fever, Coolant, Brain Tonic
30.	<i>Jvāśī</i>	<i>Fagonia cretica</i> L.	Zygophyllaceae	U. sh	Wp	Decoction, Juice, Powder, Paste	Oral	Fever, Blood Purifier, Abscess, Diabetes
31.	<i>Pīpaḷa</i>	<i>Ficus religiosa</i> L.	Moraceae	T.	Bk, Tender Buds, Fr, Lac	Decoction, Paste, Powder, Poultice, Gruel	Oral, Local	Male Infertility, Premature Ejaculation, Wounds, Abrasions, Chronic Cough, Pain And Inflammation Of Scrotum, Spermatorrhoea

32.	<i>Pāpḍo</i>	<i>Fumaria indica</i> (Haussk.) Pugsley	Fumariaceae	H.	Wp, Lf	Juice, Paste	Oral, Local, Nasal Drops	Typhoid Fever, Urticaria, Insect Bite, Worm Infestation, Fainting
33.	<i>Khaṭa khaṭī</i>	<i>Grewia flavescens</i> A.L. Juss.	Tiliaceae	Sh.	Fr, Rt,	Juice, Cold Infusion	Oral	Dysuria, Leucorrhoea, Dietary Use Veterinary – Delayed Or Retained Placenta
34.	<i>Nīla</i>	<i>Indigofera tinctoria</i> L.	Fabaceae	U. Sh	Lf, Fr, Sd, Rt	Paste, Ash, Hot Infusion, Decoction	Oral, Local	Hair Greying, Hair Care, Eczema, Dandruff, Vomiting, Heart Burn, Acid Reflux
35.	<i>Jaṅgālī Gobhī</i>	<i>Launia procumbens</i> Roxb.	Asteraceae	H.	Wp, Lf, Rt	Paste, Ghī (<i>Siddha Ghī</i>), Water Extract, Oil (<i>Siddha Taila</i>)	Local, Oral	Nonhealing Wounds, Urinary Obstructions, Eczema
36.	<i>khīmpa</i>	<i>Leptadenia pyrotechnica</i> (Forsk.) Decne.	Apocynaceae	Sh	Lf, Tender Branches, St, Wp, Fl, Fr	Hot Infusion, Paste, Decoction, Collyrium, Cold Infusion, Vegetable	Oral, Local	Dysmenorrhea, Sluggish Wounds, Fever, Ophthalmia, Conjunctivitis, Dietary Use Veterinary use

								- Fodder, conjunctivitis, foot and mouth disease
37.	<i>Bāgh nakh / Bicchu</i>	<i>Martynia annua</i> L.	Pedaliaceae	H.	Lf, Rt, Sd	Cooked Milk (Kṣīra Pāka), Paste, Garland, Cold Water Infusion	Local, Oral	Impotence In Males, Scorpion Bite, Epilepsy, Muscle Cramps
38.	<i>Kaima</i>	<i>Mitragyna parvifolia</i> (Roxb.) Korth	Rubiaceae	T.	Lf, Bk,	Poultice, Oil, Decoction, Paste	Local, Oral	Boils, Abscess, Otitis Media, Hypertension, Allergic Dermatitis
39.	<i>Deśī karelā</i>	<i>Momordica balsamina</i> L.	Cucurbitaceae	Cl.	Rt, Wp,	Water Extract, Decoction, Powder, Paste, Vegetable, Pickle	Oral, Local	Diabetes, Acne, Dietary Use
40.	<i>Nakada bavaḍī</i>	<i>Ocimum americanum</i> L.	Lamiaceae	H.	Lf, Sd, Fl	Juice, Powder, Decoction, Paste, Sauce	Oral, Local	Obesity, Ear Maggots, Haematuria, Dietary Use, Pain Abdomen, Gonorrhoea

41.	<i>Nāga phanī</i>	<i>Opuntia dillenii</i> (Ker-Gawler) Haworth	Cactaceae	Sh	Fr, Cladode	As Fruit, Juice, Cold Infusion, Poultice, Ash	Oral, Local	General Debility, Carminative, Wound Healing, Boils, Abscess, Heat Stroke, Asthma
42.	<i>Khaḍḍo Gokhrū</i>	<i>Pedaliu m murex</i> L.	Pedaliaceae	H	Fr, Wp	Powder, Cold Water Infusion, Water Extract	Oral	UTI, Heat Stroke, Spermatorrhoea, Impotence, Diarrhoea, Erectile Dysfunction
43.	<i>Dudhi yala bela</i>	<i>Pentatropis Spiralis</i> (Forsk.) Decne.	Asclepiadaceae	Cl.	St, Rt, Fr, Latex	Latex, Powder, Cold Water Infusion	Oral, Local	Incised Wound, Fever, Heat Stroke, Dysentery
44.	<i>Ākasan bela</i>	<i>Pergularia daemia</i> (Forsk.) Chiov.	Asclepiadaceae	Cl	Fl, St, Lf, Latex	Paste, Latex, Juice	Oral, Local	Herpes, Boils, Abscess, Fever
45.	<i>Cītā</i>	<i>Plumbago zeylanica</i> L.	Plumbaginaceae	H.	Rt, Lf, Wp	Paste, Powder, Decoction	Local, Oral	Boils, Abscess, Loss Of Appetite, Vitiligo, Carbuncles, Pruritis
46.	<i>Jāñṭi</i>	<i>Prosopis cineraria</i> (L.) Druce	Fabaceae	T.	Fr, Bk	Powder, Gruel, Decoction	Oral	Insomnia, Dietary Use, Leucorrhoea, Vaginitis

47.	<i>Pīlha, jāla</i>	<i>Salvedora oleoides</i> Decne	Salvadoraceae	T.	Fr, St, Lf, Rt	As Fruit, Tooth Brush, Water Extract, Decoction	Oral, Local	Dietary Use, Oro-Dental Hygiene, Diarrhoea, Pain Abdomen, Diabetes
48.	<i>Bela Khare ṅṅī / Kalyā nī Bela</i>	<i>Sida cordata</i> (Burm.f.) Bross.	Malvaceae	H.	Rt, Bk, Sd, Lf	Decoction, Poultice, <i>Modaka</i>	Oral, Local	Indigestion, Stomach Ache, Skin Diseases, Abscess, Boils, General debility, Leucorrhoea Veterinary use – diarrhoea
49.	<i>Rāṅṅā Baṅṅa aṅa</i>	<i>Solanum incanum</i> L.	Solanaceae	Sh.	Lf, Fr, Wp	Fumes, Decoction, As Vegetable	Oral, Inhalation	Asthma, Pneumonia, Dyspepsia, Indigestion, Dietary Use
50.	<i>Mako</i>	<i>Solanum nigrum</i> L.	Solanaceae	H.	Wp, Lf, Fr	Decoction, Paste, Gruel, <i>Malahara</i>	Oral, Local	Rheumatic Arthritis, Liver Problems, Generalized Oedema, Worm Infestation
51.	<i>Pasara- Kaṅṅelī</i>	<i>Solanum surattense</i> Burm.f.	Solanaceae	H.	Wp, Fr,	Decoction, Paste	Oral, Local	Cough, Fever, Sore Throat, Rheumatic Arthritis, UTI, Pruritis, Boils, Abscess

52.	<i>Katir ā</i>	<i>Sterculia urens</i> Roxb.	Sterculiaceae	T.	Gm	Cold Water Infusion, <i>Śarbat</i> (Syrup), Paste, Powder	Oral, Local	Heat Stroke, Cracked Heels, General Debility
53.	<i>Rūheḍ ā</i>	<i>Tecomella undulata</i> (Sm.) Seem.	Bignoniaceae	T.	Fl, Bk, Heart wood	Hot Water Infusion, Decoction, Paste, Powder	Oral, Local	Infertility In Females, Liver Diseases, Colic Pain Abdomen, Indigestion
54.	<i>Jhojhrū</i>	<i>Tephrosia purpuria</i> (L.) Pers.	Fabaceae	U. Sh	Wp, Rt, Lf	Powder, Decoction	Oral	Liver And Kidney Problems, Amoebic Dysentery, Anemia, Flatulence
55.	<i>Bhākhḍi</i>	<i>Tribulus terrestris</i> Linn.	Zygophyllaceae	H.	Wp, Fr	Powder, Decoction, As Vegetable	Oral	Urolithiasis, Impotence, Burning Micturition, UTI, General Debility, Dietary Use. Veterinary Use – Weakness
56.	<i>Sadāharī</i>	<i>Tridax procumbens</i> L.	Asteraceae	H.	Wp, Lf	Juice, Paste	Oral, Local	Abrasions, Pruritis, Dermatitis, Bleeding Wounds, Fungal

								Infections, Hematuria Veterinary use - proper implantation of foetus
57.	<i>Akasa ñd /Asag añdha</i>	<i>Withania somnifer a (L.) Dunal.</i>	Solanace ae	U. sh	Rt, Lf	Powder, Poultice, Paste	Oral, Local	General Debility, Burning Micturition, Spermaturia, Inflammation, Insomnia, Wound Healing
58.	<i>Khīrp halī / kuḍā</i>	<i>Wrightia tinctoria R. Br.</i>	Apocyna ceae	T.	Bk, Sd, Lf	Decoction, Powder, Water Extract	Oral	Diarrhoea, Diabetes, Flatulence, Indigestion, Infective Skin Diseases, Worm Infestation

DISCUSSION

The findings of the study highlight the rich diversity of medicinal plants used in LHTs in the Aravalli Hills of Gurugram district. The strong correlation between the medicinal uses of plants in LHTs and classical Ayurvedic texts suggests that traditional knowledge has been passed down through generations and continues to play a vital role in healthcare practices in the region. The documentation of several extra-pharmacopoeial plants and novel medicinal indications underscores the potential of LHTs in contributing to the discovery of new therapeutic agents.

The study also revealed that the knowledge of medicinal plants is rapidly eroding among the younger generation, primarily due to the increasing popularity of modern medicine and the lack of interest in traditional practices. This highlights the urgent need for conservation and documentation of traditional knowledge before it is lost forever.

The study has several implications for future research and practice. The documented medicinal plants can be further investigated for their pharmacological properties and potential applications in drug development. The study also highlights the importance of integrating traditional knowledge with modern science to develop safe and effective healthcare solutions.

CONCLUSION

The present study provides a comprehensive documentation of the herbal drugs used in LHTs in the Aravalli Hills of Gurugram district, Haryana. The findings highlight the rich diversity of medicinal plants used in the region and their potential applications in healthcare. The study also underscores the urgent need for conservation and sustainable utilization of medicinal plant resources and the preservation of traditional knowledge for future generations.

LIMITATIONS OF THE STUDY

The study has certain limitations that need to be acknowledged. The information gathered from traditional healers and local communities is based on their empirical knowledge and experiences, which may not always be scientifically validated. Further research is needed to evaluate the efficacy and safety of the documented herbal remedies. Additionally, the study was limited to a specific geographical area and may not be representative of the entire Aravalli Hills region.

FUTURE DIRECTIONS

The present study provides a foundation for future research on the medicinal plants of the Aravalli Hills. Further studies can be conducted to evaluate the pharmacological properties of the documented plants and to identify their active constituents. Clinical trials can be conducted to assess the efficacy and safety of the herbal remedies used in LHTs. Additionally, efforts can be made to conserve and sustainably utilize the medicinal plant resources of the region and to promote the integration of traditional knowledge with modern science.

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