

# Ethnomedicinal claims of Punica granatum Linn.: A review

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## Abstract

Aim and objective: *Punica granatum* Linn., family Lytheraceae, one of the most common domesticated plant and also traditionally used by local traditional healers for various disease conditions. The present review aims to collect all available ethnomedicinal information and research updates on the plant.

**Material and methods:** The documented ethnomedicinal uses of *P. granatum* from 20 books on medicinal plants and 86 research articles on ethnomedicine, published until December 2020, were reviewed. Name and place of the reporting tribe, parts used along with their therapeutic indications were noted by either external (E) or internal (I) with a particular method of administration if available.

**Results and discussion:** *Punica granatum* is being reported for its therapeutic uses in 14 states of India and other 10 countries across the globe. Its fruit, fruit rind, leaf, stem bark, seed, flower, stem, root, root bark, twig and whole plant are used in 41 different disease conditions, either through internal administration or external applications in the treatment of diarrhoea, worm infestation, dysentery etc. and through various pharmacological and clinical studies itsantidiarrheal, anthelmintic, antihypertensive, nephron protective, hepatoprotective, estrogenic, uterine contraction etc. activities have been reported.

**Conclusion:** *Punica granatum* is having multi-layered ethnomedicinal uses. Some of the ethnomedicinal claims are not validated yet. Its use in vomiting, piles, rectal prolapse, conjunctivitis / cataract, leucorrhoea, epistaxis, migraine, fever and anaemia should be evaluated through pharmacological and clinical studies to establish the ethnic claims.

Keywords: Dadima, Ethnomedicinal, Lytheraceae, Pomegranate, Punica granatum

## Introduction

Punica Granatum Linn. (Pomegranate) is one among very few plants available in the world which is being extensively used as a fruit as well as medicine. At the global level, India is the world's largest producer of pomegranates followed by Iran, Turkey, USA, Afghanistan and Spain<sup>[1]</sup>. Pomegranate fruits are available throughout the year and being cultivated in home garden its different parts are extensively used as a source of traditional medicine<sup>[2]</sup>. It is mentioned as a remedy for roundworm in the Ebers Papyrus (the oldest preserved medical document, from Egypt, ca. 1500 BCE) <sup>[3]</sup>. Hippocrates used pomegranate seed extracts for numerous ailments including skin and eye inflammation and as a digestive aid, while Dioscorides recommended various pomegranate parts, sometimes in combination with other ingredients, for stomach ailments, mouth and genital sores, gum disorders and loose teeth, as well as for expelling parasites <sup>[4]</sup>.

## **Geographical Origin and Distribution**

Pomegranate (PG) was domesticated in 2000 BC and was one of the first five fruit crops (date palm, fig, olive, grape and pomegranate) to be domesticated by mankind <sup>[1]</sup>. It is indigenous to Iran and neighboring countries that gradually developed in central Asia regions to Himalaya, Eyelet of Anatolia, Middle East, and Mediterranean area. It also thrive in Arizona and California, and has been cultivated in the Mediterranean region, South Asia, and the Middle East countries; Kandahar in Afghanistan is famous for its high quality pomegranate. Today, pomegranate is cultivated in 11 countries all-around the world <sup>[5]</sup>. In India, PG is found in the wild only in the Western Himalayan regions comprising the states of Jammu, Kashmir, Himachal Pradesh, and Uttarakhand<sup>[6]</sup>.

## **Plant Descriptions**

Pomegranate is one of only two species in the *Punica* genus; it was the sole genus in the *Punicaceae* family <sup>[7]</sup> prior to its reclassification in *Lytheraceae*<sup>[8]</sup>. PG is a deciduous shrub or small tree, sometimes thorny, growing to 16 feet (five meters) tall. It has oblong, shiny, leathery leaves up to three inches (eight centimeters) in length, and the scarlet funnel-shaped flower has five-to-eight rumpled petals with a matching calyx. The fruit is a large berry with tough, leathery skin (called a husk, rind, or pericarp), with a persistent calyx and fleshy pulp enclosing edible seeds <sup>[9]</sup>. PG as a fruit not only attracts a lot of public interest but research is also focused on its medicinal properties and food industry <sup>[10]</sup>. In Ayurveda, this is known as *Dadima* and highlighted for its therapeutic uses.

Information about the ethno-medicinal uses of the PG can be traced different platforms (i.e. journals, reports, books, and web-based sources). A single-hand information about its traditional uses is still lacking. Hence, in this article an attempt has been made to report the, and ethnomedicinal uses and reported studies of PG.

## Material and methods Study selection Inclusion criteria

Publications that described the use of *Punica granatum* (alone or with any combination of other herbs) to treat any

disease conditions either human or animal or used as food i.e. having any economic value were included in the review. This includes both external and internal applications with no language restrictions and date limitation.

## **Exclusion criteria**

Other species of *Punica* were excluded from the present review.

## **Data Collection**

Information on all reported ethnomedicinal uses of the PG from available 20 books related to ethnobotany and more than 86 ethnomedicinal research articles were compiled from library sources as well as from Google Scholar, PubMed, Science Direct and J-Gate from November 2020 to December 2020. The details of number of articles searched from individual search engines and screening method are presented in (Fig 1).

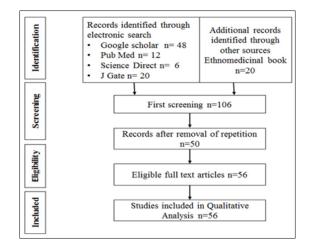


Fig 1: Data collection and screening method.

### **Result and discussion**

Local name: *Punica granatum* is known by 14 names in 16 languages. Anar: Bihar, Jharkhand, Karnataka, Punjab, Uttar Pradesh, Uttrakhand and Iran; Dalim: Asam; Dadam: Gujarat; Dadu: Kashmir; Daan Kul: Kashmir; Darooni: Kashmir; Dalimba: Maharashtra, Odisha; Darimba: Maharashtra; Darima, Dadima: Uttarakhand; Gulnar: Saudi Arab; Madhulai: Tamil nadu; Kamphoi: Manipur; Shi Liu Pi: China; Pomegranate: Fiji, Mexico, Philippines, Mauritius and Indonesia. (Table 1).

#### Area of reporting

*P. granatum* is observed to be used as medicine in 14 states of India viz. Assam, Bihar, Gujarat, Himanchal Pradesh, Jharkhand, Kashmir, Karnataka, Maharashtra, Manipur, Punjab, Saurashtra, Tamil Nadu, Uttar Pradesh, Uttrakhand and in 10 countries, such as Bhutan, China, Indonesia, Iran, Mauritius, Mexico, Philippines, Saudi Arabia, South Pacific Fiji and Tibet. This shows the availability and wide spread use of this plant across India and other part of the world (Fig 2 and Table 1 & 2).

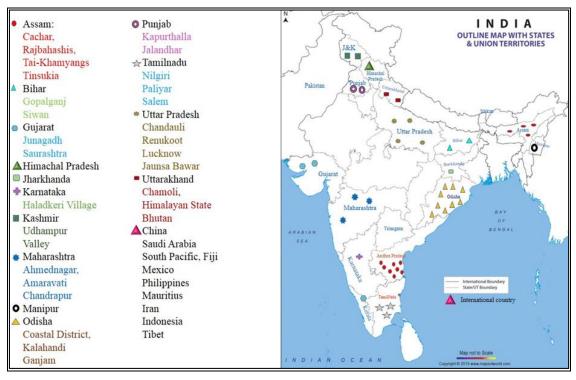


Fig 2: Ethnomedicinal claims of P. granatum in different state according to tribes.

#### Therapeutic uses

The whole plant of *Punica granatum* or its fruit, fruit rind, seed, flower bud, root, root bark, stem, stem bark, leaves and twig are observed to be used in 41 different disease conditions. Out of the 65 reporting, maximum 18 reports for its use in diarrhoea followed by 16 in worm infestation; 14 in dysentery; 5 each in cough and jaundice; 4 each in anaemia, loss of appetite; 3 each in piles, vomiting, stomach pain; 2

each in asthma, cardiac diseases, fever, gastritis, leucorrhoea, nausea, nasal bleeding, oral cavity inflammation and urinary disorder; 1 each in abdominal bloating, amenorrhoea, bed sore, conjunctivitis, cataract, dental diseases, diabetes, miscarriage, post-delivery complications, premature ejaculation, rectal prolapse, syphilis, snake bites, migraine, eye-ear disease, uterine bleeding, lungs disease, pimples, healthy gum, memory enhancer. (Table 1).

S. No	No. of claims	<b>Disease conditions</b>	Area of reporting (part used)
1.	18	18 Diarrhoea	Manipur (Fr,S,Sb,R), Jharkhand (Fr), Uttarakhand (P,Sb), Tamil Nadu (P,Fl), Gujarat (P),
1.	10		China (P), Odisha (L,Sd,F,Fr), Assam (S), Mauritius (Sb), Indonesia, Bhutan
2.	16	Worm infestation	Manipur (Fr,S,Sb,R), Uttarakhand (Fr,P,Sb), China (P), Bihar (Fl,Sb,L), Himachal Pradesh
2.	10	womin intestation	(Sb), Kashmir (Sb), Mauritius (Sb), Uttar Pradesh (Rb), Tamil Nadu (Rb)
3.	14	Dysentery	Manipur (Fr,S,Sb,R), Jharkhand (Fr), Uttarakhand (P,Sb), Assam (P,L), China (P), Tamil
5.	14	Dysentery	Nadu (Fl), Mauritius (Sb), Odisha (L,Sd), Maharashtra (Fr,Sb)
4.	5	Jaundice	Uttar Pradesh (Fr), Kashmir (Fr, P, Sd), Bihar (L)
4.	5	Cough	Tibet (Fr), Bihar (Fl,Sb), Tamil Nadu (Fl),
5.	4	Anaemia	Uttarakhand (Fr), Punjab (Fr,S), Kashmir (Sd), Indonesia
5.	4	Loss of appetite	Karnataka (Fr), Tibet (Fr), Punjab (Sd), Bhutan
6.		Piles	Gujarat (Fr), Punjab (Sd), Bihar (Fr,L)
7.	3	Vomiting	Utar Pradesh (Fr), Himachal Pradesh (Sd), Bihar (Fr,L)
8.		Stomach pain	Tamil Nadu (P), Kashmir (P), Indonesia
9.		Asthma	Maharashtra (P), Mauritius
10.		Cardiac diseases	Bihar (Fr,L), Indonesia
11.		Fever	Uttrakhand (Fr), Maharashtra (Fr)
12.		Gastritis	Assam (L), Iran
13.	2	Leucorrhoea	China (P), Indonesia
14.	2	Nausea	Uttar Pradesh (Rb), Tamil Nadu (Rb)
15.		Nasal bleeding	Assam (L), Assam (Sb)
16.		Oral cavity	Marriag (El) Dhilinningg (L)
10.		inflammation	Mexico (Fl), Philippines (L)
17.		Urinary disorder	Assam (R), Indonesia
18.		Abdominal bloating	Gujarat (P)
19.		Amenorrhoea	Odisha (Fr)
20.		Bed sore	Saudi Arabia (P)
21.		Conjunctivitis	Assam (Fr)
22.		Cataract	Assam (Sd)
23.		Dental diseases	Karnataka (Fr)
24.		Diabetes	South Pacific Fiji (P)
25.		Miscarriage	Jharkhand (L)
26.		Post-delivery	Jharkhand (L)
20.		complications	Jilarkilaliu (L)
27.		Premature	China (P)
27.	1	ejaculation	Clillia (I )
28.		Rectal prolapse	China (P)
29.		Syphilis	South Pacific Fiji (P)
30.		Snake bites	Uttar Pradesh
31.		Migraine	Bihar (L)
32.		Eye-ear disease	Bihar (L)
33.		Uterine bleeding	China (P)
34.		Lungs disease	Tibet (Fr)
35.		Pimples	Tamil Nadu (P)
36.		Healthy gum	Odisha (T)
37.		Memory enhancer	Uttar Pradesh (Fr)
38.		Anti-microbial	Uttrakhand (P)
		<i>a</i>	Ph- Poot both D-Dool Sd-Sood El- Elower T-Twig

Fr=Fruit, S=Stem, Sb= Stem bark, R= Root, Rb= Root bark, P=Peel, Sd=Seed, Fl= Flower, T=Twig

## Parts used

The whole plant of PG or its fruit, fruit rind, seed, flower bud, root, root bark, stem, stem bark, leaves and twig are observed to be used in 41 different disease conditions. Fruits is reported by maximum 18 tribes / area. Fruit rind is reported by 12 tribes followed by 10 for leaf, 8 for bark / stem bark; 6 for seed; 4 for flower / bud; 3 for stem / shoot, 2 each for root

and root bark, 1 each for twig and whole plant. 4 tribes / area did not report any part used. (Table 2).

#### **Dosage form**

Fruit, fruit rind, seed, flower bud, root, root bark, stem, stem bark, leaves and twig of PG are used in 4 dosage forms. Among them, Juice (12) and paste (12) are maximum dosage form found followed by powder (9) and

# Decoction (8). Raw fruits has been in use by 6 reportings. (Table 2).

# Table 2: Ethnomedicine claims of different parts of Punica granatum

Darima         Uttrakhand         Juice (f)         Fever (duretic and cooling effect) <sup>110</sup> Mampioi         Manyur         Raw fruit (f)         Worm infectation, Diarthoca, Dysentery           Dalima         Tinsukin, Assam         Juice (E)         Conjunctivitis <sup>110</sup> .           Anar         Interkhand         Raw fruit (f)         Diarthoca, Dysentery           Anar         Interkhand         Raw fruit (f)         Diarthoca, Dysentery           Dalima         Anar         Chanodi, Uttar Pradesh         Paste unity fruit (f)         Jaundice and Youning           Anar         Chandul, Uttar Pradesh         Decocion, Raw Fruit (f)         Jaundice and Youning         Fever, <sup>187</sup> Anar         Haladkeri Village, Kanataka         Juice fruit mix with fermented rice water         Amenorthoca <sup>199</sup> Loss of appetite and Denal disease <sup>120</sup> Daronori         Uthampur, Kashnir         Juice Fruit mixed with Phyllanthus emblice         Jaundice <sup>171</sup> Jaundice <sup>171</sup> Darima         Marchandra, Gajat         Provder (f)         Loss of appetite and Denal disease <sup>120</sup> Darima         Uttrakhand         Paste dried fruit coat is grounded and mixed         Stomach pain and Diarrhoca <sup>127</sup> Madhulai         Nilgiri, Tamil Natu         Paste prepared from fruit back along         With thalf copt <sup></sup>	Local name	Tribes/ areas	Dosage form: External (E); internal (I) uses	Therapeutic claims
Kamphoi         Manipur         Raw fruit (1)         Worn infestation, District, New Annuel (E)         Conjunctivitis <sup>[13]</sup> Anar         Barkhand         Raw fruit (1)         Diarrhoea, Dysentery         Manuel (1)         Diarrhoea, Dysentery         Manuel (1)         Diarrhoea, Dysentery         Manuel (1)         Manuel (			Fruit	
Datim         Tinstkia, Assam         Juice (E)         Conjunctions [10]           Anar         Barkhand         Raw fruit (f)         Darrheea, Dysentery [14]           Anar         Chamohi, Utrakhand         Raw fruit (f)         Marnel [16]           Dadim         Himalayan state, Utrakhand         Raw fruit (f)         Jaundice and Yourning [16]           Anar         Reakot, Utar Pradesh         Deoction, Raw Fruit (f)         Jaundice and Yourning [16]           Dalimba         Ahmednagar, Maharastra         Juice (a full glass) twice a day, (f)         Fever, [16]           Dalinba         Kalabundi District, Odisha         Paste uriper fruit with formented rise water         Amenorybooster, [16]           Anar         Haladkeri Village, Kamaha         -         Loss of appetite and Deenal diseas [2]           Darooni         Uthampur, Kashmi         Juice (T)         Jaundice [21]           Anar         Kagurthal District, Punjab         Juice (T)         Loss of appetite, cough and Lungs diseas           Darima         Uttrakhand         Paste rise (T) front privater and Privater (D)         Paster, [28]           Madului         Pillya Tribs, Tamil Nadu         Paster rise (T) front fruit ont is grounded and mixed and privater (D)         Dysentery (28]           Darima         Uttrakhand         Deoction pren with one (D) front can gro				
Anar         Barkhand         Raw fruit (1)         Diarnhoea. Speerery 1140           Dadin         Himalzyan state. Utrakhand         Raw fruit (1)         Worm infestation 1180           Anar         Chandauli, Utar Pradesh         Becoction. Raw Fruit (1)         Memory barkets (1)           Amar         Renukou, Utur Pradesh         Raw Fruit (1)         Memory barkets (1)           Dalimba         Ahmednagar, Maharstra         Julice f full gals try twice a dw. (1)         Fever. 191           Dalimba         Kalahandi District, Odisha         Paste unripe fruit with fermeraled rice water         Amenorthoesi (2)           Anar         Haladkeri Village, Karnataka         Loss of appetite and Dental disease <sup>12</sup> Darooni         Uthampur, Kashmir         Juice Fruit mixed with <i>Prythamhas embira</i> Jauncice [12]           Anar         Kapurtula District, Odisha         Powder (1)         Loss of appetite, cough and Langs diseas           Darooni         Utharkhand         Powder (1)         Loss of appetite, cough and Langs diseas           Madhulai         Nilgiri, Tamil Nadu         Paste made up of powder of fruit pericary and mal Langs diseas         Pimples <sup>108</sup> Martine and third cry is takar ange and partice (1)         Loss of appetite, cough and Langs disea         Pimples <sup>108</sup> Dafam         Sauardstra, Obigat				Worm infestation, Diarrhoea, Dysentery <sup>[12]</sup>
Anar         Chamoli District, Uttrakhand         Raw fruit (1)         Anarelia           Dadim         Hinalayan state, Uttrakhand         Raw Fruit (1)         Jaundice and Yourning 173           Anar         Chandauli, Uttar Pradesh         Decoction, Raw Fruit (1)         Jaundice and Yourning 173           Dalimba         Ahmendragar, Maharastra         Jhice (a full glass) twice a day, (1)         Fever, 189           Dalimba         Kalahandi District, Odisha         Paste unripe fruit with thermented rice water for 3-5 days, (1)         Loss of appetite and Denal diseas 172           Anar         Kapurthala District, Panjab         Jalace (1)         Anaerite, Colland Colla			1 /	Conjunctivitis <sup>[15]</sup>
Dadim         Himalayan state, Uttrakhand         Raw Fruit (1)         Worm infestation <sup>(16)</sup> Anar         Chandauli, Uttur Pradesh         Decection, Raw Fruit (1)         Memotypar, Mahmrastm         Julice (a full glass) twice a day. (1)         Memotypar, Mahmrastm         Julice (1)         Memotypar, Mahmrastm         Julice (1)         Memotypar, Mahmrastm         Julice (1)         Memotypar, Mahmrastm         Julice (1)				Diarrhoea, Dysentery [14]
Anar         Chandauli, Untar Pradesh         Decection, Raw Fruit (1)         Jaunice and Womiting <sup>[15]</sup> Dalimba         Ahmer Pradesh         Raw Fruit (1)         Memory booster, <sup>[16]</sup> Dalimba         Ahmerdnagar, Maharastra         Juice (n full glass) roke a day, (1)         Fever, <sup>[16]</sup> Dalimba         Kalahandi District, Otisha         Paste unripe fruit with fermented rice water for 3-5 days, (1)         Loss of appetite and Dental disease <sup>[2]</sup> Anar         Haldkeri Village, Kannataka         Juice Fruit mixed with Phyllanthus emblica juice, (1)         Jaundice <sup>[21]</sup> Anar         Kapurthala District, Punjab         Juice (1)         Anaemia <sup>[23]</sup> Dadum         Surushara, Gujarat         Powder (1)         Loss of appetite, cough and Lungs diseas           Darima         Utrakhand         Paste made up of powder of fruit pericarp and 15 gm butter (E)         Darrhoea, Dysentery / Worm infestation           Madhulai         Nilgiri, Tamil Nadu         Paste made up of powder of fruit pericarp and 15 gm butter (E)         Stomach pain and Diarrhoea <sup>[27]</sup> Dalim         Tai-Khamyangs of Assam         Garcrinic peduneducata, Peci O Punica greanatum and 1 dried Terminalia chebula. (I)         Stomach pain and Diarrhoea <sup>[27]</sup> Dalimba         Amravati District, Maharastri witch haff cup is taken once in a day for 21 dways: (I)         Antimericobial <sup>[29]</sup>				
Anar         Remckoor, Uttar Pradesh         Raw Fruit (1)         Memony pooster, <sup>[18]</sup> Dalimba         Kalahandi District, Odisha         Puste unripe fruit with formented rice water for 3-5 days, (1)         Fevre, <sup>[179</sup> ]           Darooni         Udhampur, Kashmir         Juice Fruit mixed with Phyllanthus emblica juice, (1)         Loss of appetite, coupt and Langs discase <sup>[2]</sup> Anar         Kagurthala District, Punjab         Juice (1)         Anarce (1)         Juandice <sup>[23]</sup> Anar         Kagurthala District, Punjab         Juice (1)         Loss of appetite, coupt and Langs discase           Anar         Kagurthala         Powder (1)         Loss of appetite, coupt and Langs discase           Terit Rind / Pecl / Pericarg / Skull of Fruit         Loss of appetite, coupt and Langs discase           Madhulai         Nilgrir, Tamil Nadu         Paste made up of powder of fruit pericag and ISMI buits are for a fruit great of a fruit pericage and ISMI buits are for a fruit great disca from indica choulda. (1)         Disrobea, Dysentery (20)           Darim         Uttrakhand         Decoction given with Jaggery (1)         Anti-microbial <sup>[29]</sup> Darim         Uttrakhand         Decoction (1)         Disrobea and Abdominial bloating for Addreshi and fraid are minula choulda. (1)           Darin         Uttrakhand         Decoction (1)         Darhoea (12)           Darim				
Dalimba         Ahmednagar, Maharastri         Juice (a full glass) twice a day. (1)         Fever. <sup>(19)</sup> Dalimba         Kalahandi District, Odish         Paste unripe frain with fermented viewer for 3-5 days. (1)         Amer         Ameronice [22]           Darooni         Udhampur, Kashmir         Juice Frait mixed with Phyllanthus emblica juice. (1)         Loss of appetite and Dental disease <sup>12</sup> Anar         Kapurhala District, Punjab         Juice (1)         Anaemia [23]           Dadam         Saurshtra, Gujarat         Powder (1)         Loss of appetite, cough and Langs diseas           Darima         Uttrakhand         Port Pericarp 7 Skull of Pruit         Powder (1)         Loss of appetite, cough and Langs diseas           Madhulai         Nilgiri, Tamil Nadu         Paste made up of powder of fruit pericarp and Uttrakhand         Paste prepared by mixing dried root of Garcinia pedancidata, Peel of Punica gramam and 1 dried Terminala chabala. (1)         Dysentery [28]           Dalim         Tai-Khamyangs of Assam         Paste prepared by mixing dried root of Garcinia pedancidata, Peel of Punica gramam and 1 dried Terminala chabala. (1)         Dysentery [28]           Dalimba         Anaravati District, Maharastra         Powder (1)         Anthemica [19]           Dacton prepared from fruit bark along with stem bark of Azadirachta indica from type dried and prepared period from fruit barkalong for days. (1)         Anthemica [19]				Jaundice and Vomiting <sup>[17]</sup>
Dalimba         Kalahandi District, Odisha         Paste unip fruit with fermented rice water for 3-5 days. (1)         Loss of appetite and Dental disease <sup>12</sup> Darooni         Udhampur, Kashmir         Jaice Fruit mixed with Phyllandus emblica jucice. (1)         Loss of appetite, cough and Lange disease <sup>12</sup> Anar         Kapurthala District, Punjab         Jaice (1)         Loss of appetite, cough and Lange disease <sup>12</sup> -         Tibet         Powder (1)         Loss of appetite, cough and Lange disease           -         Tibet         Powder (1)         Loss of appetite, cough and Lange disease           -         Tibet         Powder (1)         Loss of appetite, cough and Lange disease           -         Tibet         Powder (1)         Loss of appetite, cough and Lange disease           -         Tibet         Powder (1)         Loss of appetite, cough and Lange disease           -         Tibet         Paste dried fuit coust is grounded and mixed         Pinnelse (12)           Madhulai         Nilgiri, Tamil Nadu         Paste progure by mixing diricd root of Garcenia perfame furnit contachala, nel of Panica ground and mixed         Poweder (1)         Powler.           Darim         Uttrakhand         Decoction given with Juggery (1)         Anti-microbial <sup>129</sup> Powler.           Dalimba         Amravati District, Maharastra				Memory booster. [10]
Anar         Haladkeri Village, Karnataka         Ior 5-30 atys, (1)         Loss of appetite and Dental disease [2]           Darooni         Udhanpur, Kashmir         Juice Fruit mixed with Phyllanthus emblica juice, (1)         Jaundice [23]           Anar         Kapurthala District, Punjab         Juice (1)         Anarenin [23]           Dadam         Saurashtra, Gujarat         Powder (1)         Loss of appetite, cough and Lungs diseas           Darima         Uttrakhand         Paste made up of powder of fruit pericarp and ISgm butter (E)         Diarrhoea, Dysentery / Worm infestation           Madhulai         Nilgiri, Tamil Nadu         Paste made up of powder of fruit pericarp and ISgm butter (E)         Stomach pain and Diarrhoea (17)           Madhulai         Paliyar Tribe, Tamil Nadu         Paste prepared by mixing dried root of Garcrinia pedunculata, Peel of Panica gramatum and 1 dried Terminalia chebula, (1)         Stomach pain and Diarrhoea (17)           Daim         Tai-Khamyangs of Assam         Stomach pain and Diarrhoea (17)         Stomach pain and Diarrhoea (17)           Daim         Tai-Khamyangs of Assam         Paste-fried fruit coat is grounded and mixed gramatum and 1 dried Terminalia chebula, (1)         Dysentery [28]           Daim         Tai-Khamyangs of Assam         Decoction prepared from fruit bark along with shear bark of Acadiracha indice from disch fruit fruit         Jaundice [27]           Darooni         Udhamp			Paste unripe fruit with fermented rice water	
Darooni         Udhampur, Kashmir         Juice Fruit mixed with <i>Phyllanhus emblica</i> juice. (1)         Jaundice <sup>[23]</sup> Anar         Kapurthaln District, Punjab         Juice (1)         Anaemin <sup>[23]</sup> Dadam         Saurashtra, Giajarat         Powder (1)         Loss of appetite, cough and Lungs diseas           -         Tibe         Fruit Rind / Peel / Pericarp / Skull of Fruit         Diarrhoea, Dysentery / Worm infestator           Madhulai         Nilgiri, Tamil Nadu         Paste made up of powder of fruit pericarp and 15gm butter (E)         Diarrhoea, Dysentery / Worm infestator           Madhulai         Pality Tribe, Tamil Nadu         Paste - dried fruit coat is grounded and mixed with water (1)         Stomach pain and Diarrhoea <sup>[27]</sup> Darim         Uttrakhand         Decoction green water and theired Powica ground and and fried Terminalia chehula. (1)         Dysentery <sup>[28]</sup> Darim         Uttrakhand         Decoction green and thread and with a state and en a day for 21 days. (1)         Anti-microbial <sup>[29]</sup> Darooni         Udhampur, Kashmir         Powder- dried and and bried and mixel with stem bark of <i>Azadirachta indica</i> from (1)         Jaundice <sup>[21]</sup> Darooni         Udhampur, Kashmir         Powder- dried and groy 21 days. (1)         Asthma <sup>[29]</sup> -         South pacific, Fiji         Powder entri and anday for 21 days. (1)         Diarrhoea, Dysent	Anar		for 3-5 days. (1)	
Darboni         Consimplier, Rasmini         juice (1)         Anameter           Anar         Kapurthal District, Punjab         Juice (1)         Anaernia [ <sup>23</sup> ]           Dadam         Saurashtra, Gujarat         Powder (1)         Loss of appetite, cough and Lungs diseas           Tibet         Fruit Rind /Peel / Pericarp / Skull of Fruit         Diarrhoea, Dysentery / Worm infestation           Madhulai         Nilgiri, Tamil Nadu         Paste made up of powder of fruit pericarp and Lyngs diseas         Diarrhoea, Dysentery / Worm infestation           Madhulai         Paliyar Tribe, Tamil Nadu         Paste ende up of powder of fruit pericarp and Lyngs dicel root of Garcinia pedunculata, Peel of Punica Assam         Stomach pain and Diarrhoea [ <sup>27]</sup> Dalim         Tai-Khamyangs of Assam         Paste prepared by mixing dicel root of Garcinia pedunculata, Peel of Punica Assam         Dysentery [ <sup>28]</sup> Darim         Utrakhand         Decoction prepared from fruit bark along which hadfer arom which half cup is taken once in a day for 21 days. (1)         Anti-microbial [ <sup>29]</sup> Darooni         Udhampur, Kashmir         Powder- dried and fined powdered fruit rind         Jaundice [ <sup>22]</sup> Darooni         Udhampur, Kashmir         Powder- dried and fined powdered fruit rind         Bed sore [ <sup>30]</sup> -         Northern part of Saudi Arabia         Paste of fruit rind         Bed sore [ <sup>31]</sup>			Juice Fruit mixed with <i>Phyllanthus emblica</i>	
Dadam         Saurashtra, Gujarat         Powder (1)         Piles [24]           -         Tibet         Fruit Rind / Peel / Pericarp / Skull of Fruit         Diarrhoea, Dysentery / Worm infestation           Madhulai         Nilgiri, Tamil Nadu         Paste made up of powder of fruit pericarp and Isgm butter (E)         Diarrhoea, Dysentery / Worm infestation           Madhulai         Patiyar Tribe, Tamil Nadu         Paste made up of powder of fruit pericarp and Isgm butter (E)         Stomach pain and Diarrhoea [17]           Dalim         Tai-Khamyangs of Assam         Paste prepared by mixing dried root of Garcinia pedinucluta, Peel of Punica Dysentery [28]         Dysentery [28]           Darim         Utrakhand         Decoction given with Jaggery (I)         Anti-microbial [19]           Darim         Maravati District, Maharastra         Decoction given with Jaggery (I)         Anti-microbial [19]           Darooni         Udhampur, Kashmir         Powder- cristed rind long with curd (I)         Stomach pain [22]           Darooni         Udhampur, Kashmir         Powder- cristed rind long with curd (I)         Stomach pain [23]           Darooni         Udhampur, Kashmir         Powder- cristed rind long with curd (I)         Stomach pain [23]           Darooni         Udhampur, Kashmir         Powder (I)         Diarrhoea, Dysentery, Rectal prolapse Premate (I)         Stomach pain [23]           <	Darooni	-	juice. (I)	
Tibet         Powder (I)         Loss of appetite, cough and Lungs diseas           Darima         Uttrakhand         -         Fuit Rind / Peel / Pericarp / Skull of Fuit           Madhulai         Nilgiri, Tamil Nadu         Paste made up of powder of fruit pericarp and Isgm butter (Is)         Diarrhoea, Dysentery / Worm infestation           Madhulai         Palityar Tribe, Tamil Nadu         Paste of ried fruit coat is grounded and mixed with water (I)         Stomach pain and Diarrhoea [27]           Dalim         Tai-Khamyangs of Assam         Paste prepared by mixing dried root of Garcinia pedunculata, Peel of Punica granatum and I dried Terminalia chebula. (I)         Dysentery [28]           Dalim         Amaravati District, Maharastar         Peecotion given with Jaggery (I)         Anti-microbial [29]           Darooni         Udhampur, Kashmir         Powder- dried and finely powdered fruit rind         Jaundice [22]           Darooni         Udhampur, Kashmir         Powder- dried and finely powdered fruit rind         Jaundice [23]           -         Northern part of Saudi Arabia         Paste of fruit rind         Bed sore <sup>123</sup> Dalim         China         (I), (E)         Diarrhoea, Dysentery, Nexal prolapse           -         South pacific, Fiji         Powder vith water (I)         Diarrhoea (Astemia [27]           Dadam         Junageada         Juice (I)         Vomi	Anar	Kapurthala District, Punjab	Juice (I)	
Trite Rind / Peel / Pericarp / Skull of FruitDarimaUttrakhandPaste made up of powder of fruit pericarp and 15gm butter (E)Diarhoea, Dysentery / Worm infestationMadhulaiPaliyar Tribe, Tamil NaduPaste dred fruit coat is grounded and mixed with water (I)Stomach pain and Diarhoea <sup>[27]</sup> DalimTai-Khanyangs of AssamPaste dred fruit coat is grounded and mixed groundet and and I dried Terminalia chebala. (I)Stomach pain and Diarhoea <sup>[27]</sup> DalimUtrakhandDecocito given with Jaggery (I)Anti-microbial <sup>[28]</sup> DalimbaAmravati District, Maharastra with set back of Azafrachia indica throthan indica thr	Dadam	Saurashtra, Gujarat		
Darima         Uttrakhand         Paste made up of powder of fruit pericarp and ISgm butter (E)         Diarrhoea, Dysentery / Worm infestation Pimples <sup>[26]</sup> Madhulai         Paliyar Tribe, Tamil Nadu         Paste dried fruit coit is grounded and mixed with water (I)         Stomach pain and Diarrhoea <sup>[27]</sup> Dalim         Tai-Khanyangs of Assam         Paste prepared by mixing dried root of Garcinia pedunculata, Peel of Punica groantum and 1 dried Terminalia chebula. (I)         Stomach pain and Diarrhoea <sup>[28]</sup> Dalim         Uttrakhand         Decoction given with Jaggery (I) Decoction prepared from fruit bark along         Anti-microbial <sup>[29]</sup> Dalimba         Amravati District, Maharastra with stem bark of Azadirachia indica from which half cup is taken once in a day for 21 days. (I)         Anti-microbial <sup>[29]</sup> Darooni         Udhampur, Kashmir         Powder- crushed rind along with curd (I)         Stomach pain <sup>[21]</sup> Darooni         Udhampur, Kashmir         Powder drint rind         Bed sore <sup>[13]</sup> -         Northern part of Saudi Arabia         Paste of fruit rind         Dairhoea, Dysentery, Rectal prolapse Premature ejoculation, Uterine bleedin Leucorthoea, Worm infestation <sup>[33]</sup> -         South pacific, Fiji         Powder with water (I)         Diarthoea and Ahdominal <sup>[36]</sup> -         South pacific, Fiji         Powder with water (I)         Stotaract <sup>[36]</sup> Dadu	-	Tibet		Loss of appetite, cough and Lungs disease $[2]$
Madhulai         Nilgiri, Tamil Nadu         Paste made up of powder of fruit pericarp and Liggm butter (E)         Primples [26]           Madhulai         Paliyar Tribe, Tamil Nadu         Paste dried fruit coat is grounded and mixed with water (1)         Stomach pain and Diarrhoea [27]           Dalim         Tai-Khanyangs of Assam         Paste prepared by mixing dried root of <i>Garcinia pedmecultate</i> , Peel of <i>Punica groundum and I dried Zerminalia chebulae</i> , (1)         Dysentery [28]           Darim         Uttrakhand         Decoction given with Jaggery (1)         Anti-microbial <sup>129</sup> )           Maravati District, Maharastra         Decoction prepared from fruit bark along with stem bark of <i>Azadirachia tudea</i> (Tom Mich half cup is taken once in a day for 21 days. (1)         Asthma <sup>130</sup> Darooni         Udhampur, Kashmir         Powder- dried and finely powdered fruit rind (1)         Jaundice <sup>123</sup> Darooni         Udhampur, Kashmir         Powder- dried and finely powdered fruit rind (1)         Stomach pain <sup>122</sup> Darooni         Udhampur, Kashmir         Powder- dried and Jauge         Portocion (1)         Stomach pain <sup>123</sup> Shi liu pi         China         (1), (E)         Premature ciaculaton, Uterine bleed Premature ciaculaton, Uterine bleed Pr			Fruit Rind / Peel / Pericarp / Skull of Fruit	
Maanual     Night, ramin Nadu     1 Sgm butter (E)     1     Primpes (ST)       Madhulai     Paliyar Tribe, Tamil Nadu     Paste- dried fruit coat is grounded and mixed with water (I)     Stomach pain and Diarrhoea [27]       Dalim     Tai-Khamyangs of Assam     Paste prepared by mixing dried root of Garcinia pedunculata. Reel of Punica pranatum and 1 dried Terminalia chebula. (I)     Dysentery [28]       Darim     Uttrakhand     Decoction prepared from fruit bark along which half cup is taken once in a day for 21 days. (I)     Anti-microbial [29]       Darooni     Udhampur, Kashmir     Powder- dried and finely powdered fruit rind Junagadh, Gujarat     Jaundice [22]       Darooni     Udhampur, Kashmir     Powder- crushed rind along with curd (I)     Stomach pain [22]       Darooni     Udhampur, Kashmir     Powder- crushed rind along with curd (I)     Diarrhoea and Abdominal bloating [3]       Dadam     Junagadh, Gujarat     Decoction (I)     Diarrhoea and Abdominal bloating [3]       -     Northern part of Saudi Arabia     Paste of fruit rind     Bed sore <sup>[22]</sup> -     Northern part of Saudi Arabia     Powder with water (I)     Diarrhoea and Abdominal bloating <sup>[35]</sup> -     South pacific, Fiji     Powder with water (I)     Diarrhoea (I)     Diarrhoea (I)       -     South pacific, Fiji     Powder with water (I)     Junadice and Abadomina (I)       -     South pacific, Fiji	Darima	Uttrakhand	-	Diarrhoea, Dysentery / Worm infestation [1]
Maintail       Failyar Tribe, Tamin Yadu       with water (1)       Storach pain also Diarrioea ***         Dalim       Tai-Khamyangs of Assam       Paste prepared by mixing dried root Garcinia pedunculata, Reel of Punica granatum and 1 dried Terminalia chebula. (1)       Dysentery <sup>[28]</sup> Darim       Uttrakhand       Decoction given with Jaggery (1)       Anti-microbial <sup>[29]</sup> Dalimba       Amravati District, Maharastra       Decoction given with Jaggery (1) days. (1)       Anti-microbial <sup>[29]</sup> Darooni       Udhampur, Kashmir       Powder- crushed rind along with curd (1)       Storach pain <sup>[20]</sup> Darooni       Udhampur, Kashmir       Powder- crushed rind along with curd (1)       Storach pain <sup>[21]</sup> Dadam       Juagadh, Gujarat       Decoction (1)       Diarrhoea and Abdominal bloating <sup>[31]</sup> -       Northern part of Saudi Arabia       Paste of fruit rind       Bed sore <sup>[32]</sup> Shi liu pi       China       (1), (E)       Premature gicaulation, Uterine bleedin Leucorhoea, Worm infestation <sup>[33]</sup> -       South pacific, Fiji       Powder with water (1)       Diarhoea, anemia <sup>[37]</sup> Dalim       Assam, India       Juice (1)       Vorming <sup>[36]</sup> Daan Kul       Kashmir Valley       -       Jaundice and Anatamia <sup>[37]</sup> Daan Kul       Kashmir Valley       - <td>Madhulai</td> <td>Nilgiri, Tamil Nadu</td> <td>15gm butter (E)</td> <td>Pimples<sup>[26]</sup></td>	Madhulai	Nilgiri, Tamil Nadu	15gm butter (E)	Pimples <sup>[26]</sup>
DalimTai-Khamyangs of AssamPaste prepared by mixing dried root of Garcinia pediunculata, Peel of Punica granatum and 1 dried Terminalia chebula. (I)Dysentery [26]DarimUttrakhandDecoction given with Jaggery (I)Anti-microbial [29]DalimbaAmravati District, MaharatraDecoction prepared from fruit bark along with stem bark of Azadirachta indica from which half cup is taken once in a day for 21 days. (I)Asthma [30]DarooniUdhampur, KashmirPowder- dried and finely powdered fruit rind (I)Jaundice [22]DarooniUdhampur, KashmirPowder- crushed find along with curd (I)Stomach pain [22]DadamJunagadh, GujaratDecoction (I)Diarrhoea and Abdominal bloating [3]-Northern part of Saudi ArabiaPaste of fruit rindBed sore [32]-South pacific, FijiPowder with water (I)Diarrhoea, Dysentery, Rectal prolapse Premature ejaculation, Uterine bleedin Leucorhoea. Worn infestation [33]-South pacific, FijiPowder with water (I)Diabetes [34]DaluHimachal PradeshJuice (E)Cataract [35]DaluHimachal PradeshJuice (I)Vomiting [60]Daan KulKaspurthala District, Punjab(I)Loss of appetite and Piles [18]AnarGopalganj, Bihar(I)Cough, Dysentery, Diarhoea [41]-NetkicoDecoction (E)Oral cavity inflammation [41]-MakinaJuice (I)Gastritis [42]DalimAssam, IndiaJuice (I)Ough, Dysentery, Diarhoea [44]-Dalim	Madhulai	Paliyar Tribe, Tamil Nadu		Stomach pain and Diarrhoea <sup>[27]</sup>
Darim         Uttrakhand         Decoction given with Jaggery (1)         Anti-microbial [ <sup>29</sup> ]           Dalimba         Amravati District, Maharastra         Decoction prepared from fruit bark along with stem bark of Azadrarchta indica from which half cup is taken once in a day for 21 days. (1)         Asthma [ <sup>30</sup> ]           Darooni         Udhampur, Kashmir         Powder- dried and finely powdered fruit rind (1)         Jaundice [ <sup>21</sup> ]           Darooni         Udhampur, Kashmir         Powder- crushed rind along with curd (1)         Stomach pain [ <sup>22</sup> ]           Dadam         Jaungadh, Gujarat         Decoction (1)         Diarrhoea ad Abdominal bloating [ <sup>31</sup> ]           -         Northern part of Saudi Arabia         Paste of fruit rind         Bed sore [ <sup>32</sup> ]           -         Northern part of Saudi Arabia         Paste of fruit rind         Bed sore [ <sup>32</sup> ]           -         South pacific, Fiji         Powder with water (I)         Diarrhoea, Morthine [ <sup>36</sup> ]           -         South pacific, Fiji         Powder vith water (I)         Usarrhoea, So appetite and Piles [ <sup>18]</sup> -         South pacific, Fiji         Decoction (1)         Loss of appetite and Piles [ <sup>18]</sup> -         South pacific, Fiji         Decoction (1)         Loss of appetite and Piles [ <sup>18]</sup> -         South pacific, Fiji         Decoction (E)         Oral cavity inflammation [ <sup>41</sup> ]	Dalim		Paste prepared by mixing dried root of <i>Garcinia pedunculata</i> , Peel of <i>Punica</i>	Dysentery <sup>[28]</sup>
Dalimba         Amravati District, Maharastra         Decoction prepared from fruit bark along with stem bark of Azadirachta indica from which half cup is taken once in a day for 21 days. (I)         Asthma <sup>[30]</sup> Darooni         Udhampur, Kashmir         Powder- dried and finely powdered fruit rind (I)         Jaundice <sup>[22]</sup> Darooni         Udhampur, Kashmir         Powder- crushed rind along with curd (I)         Stomach pain <sup>[22]</sup> Dadam         Junagadh, Gujarat         Decoction (I)         Diarthoea and Abdominal bloating <sup>[31]</sup> -         Northern part of Saudi Arabia         Paste of fruit rind         Bed sore <sup>[32]</sup> Shi liu pi         China         (I), (E)         Diarthoea, Dysentery, Rectal prolapse, Premature ejaculation, Uterine bleedin           -         South pacific, Fiji         Powder with water (I)         Diabetes <sup>[34]</sup> -         South pacific, Fiji         Powder with water (I)         Diabetes <sup>[34]</sup> Dalim         Assam, India         Juice (E)         Cataract <sup>[35]</sup> Dadu         Himachal Pradesh         Juice (I)         Vomiting <sup>[36]</sup> -         South pacific, Fiji         Decoction (I)         Syphilis <sup>[18]</sup> -         South pacific, Fiji         Decoction (I)         Syphilis <sup>[18]</sup> -         South pacific, Fiji	Darim	Uttrakhand		Anti-microbial <sup>[29]</sup>
DaroomUdnampur, Kashmir(f)Jaunduce (set)DarooniUdhampur, KashmirPowder- crushed rind along with curd (I)Stomach pain [22]DadamJunagadh, GujaratDecoction (I)Diarrhoea and Abdominal bloating <sup>[13]</sup> -Northern part of Saudi ArabiaPaste of fruit rindBed sore <sup>[32]</sup> -Northern part of Saudi ArabiaPaste of fruit rindBed sore <sup>[32]</sup> -South pacific, FijiPowder with water (I)Diarrhoea, Dysentery, Rectal prolapse-South pacific, FijiPowder with water (I)Diabetes <sup>[34]</sup> -South pacific, FijiPowder with water (I)Diabetes <sup>[34]</sup> -South pacific, FijiPowder with water (I)Uorniting <sup>[36]</sup> DalimAssam, IndiaJuice (I)Vorniting <sup>[36]</sup> DataKalpurthala District, Punjab(I)Loss of appetite and Piles <sup>[18]</sup> -South pacific, FijiDecoction (I)Syphilis <sup>[38]</sup> -South pacific, FijiDecoction (I)Syphilis <sup>[38]</sup> Flower bud-AnarGopalganj, Bihar(I)Cough, Dysentery, Diarrhoea <sup>[40]</sup> -MexicoDecoction (E)Oral cavity inflammation <sup>[41]</sup> -MacicoDecoction (E)Epistaxis (Nasal Bleeding) <sup>[35]</sup> DalimAssam, IndiaJuice (I)Oysentery <sup>[43]</sup> -MexicoDecoction (E)Opsentery <sup>[43]</sup> -MexicoDecoction (E)Opsentery <sup>[43]</sup> DalimAssam, IndiaJuice (I)Oysentery <sup>[4</sup>	Dalimba	Amravati District, Maharastra	with stem bark of <i>Azadirachta indica</i> from which half cup is taken once in a day for 21 days. (I)	Asthma <sup>[30]</sup>
DadamJunagadh, GujaratDecoction (I)Diarrhoea and Abdominal bloating $[3]$ -Northern part of Saudi ArabiaPaste of fruit rindBed sore $[32]$ Shi liu piChina(I), (E)Diarrhoea, Dysentery, Rectal prolapse Premature ejaculation, Uterine bleedin Leucorrhoea, Worm infestation $[33]$ -South pacific, FijiPowder with water (I)Diabetes $[34]$ -South pacific, FijiPowder with water (I)Diabetes $[34]$ -South pacific, FijiPowder with water (I)Diabetes $[34]$ DalimAssam, IndiaJuice (E)Cataract $[35]$ DaduHimachal PradeshJuice (I)Vomiting $[36]$ Daan KulKashmir Valley-Jaundice and Anaemia $[37]$ AnarKapurthala District, Punjab(I)Loss of appetite and Piles $[18]$ -South pacific, FijiDecoction (I)Syphilis $[38]$ -South pacific, FijiDecoction (I)Syphilis $[38]$ -South pacific, Tamil Nadu(I)Cough, Dysentery, Diarrhoea $[40]$ -MexicoDecoction (E)Oral cavity inflammation $[41]$ MadhulaiSalem District, Tamil Nadu(I)Cough, Dysentery, Diarrhoea $[40]$ DalimAssam, IndiaJuice (I)Oral cavity inflammation $[41]$ DalimAssam, IndiaJuice (I)Oral cavity inflammation $[41]$ DalimAssam, IndiaJuice (I)Dysentery $[43]$ DalimAssam, IndiaJuice (I)Post-delivery complaints $[42]$ DalimAssam, India <td>Darooni</td> <td>Udhampur, Kashmir</td> <td>Powder- dried and finely powdered fruit rind (I)</td> <td></td>	Darooni	Udhampur, Kashmir	Powder- dried and finely powdered fruit rind (I)	
	Darooni	Udhampur, Kashmir	Powder- crushed rind along with curd (I)	
Shi liu piChinaDiarthoea, Dysentery, Rectal prolapse Premature ejaculation, Uterine bleedin Leucorrhoea, Worm infestation [33]-South pacific, FijiPowder with water (I)Diarthoea, Dysentery, Rectal prolapse Premature ejaculation, Uterine bleedin Leucorrhoea, Worm infestation [33]DalimAssam, IndiaJuice (E)Cataret [35]DaduHimachal PradeshJuice (I)Vormiting [36]DankulKashmir Valley-Jaundice and Anaemia [37]AnarKapurthala District, Punjab(I)Loss of appetite and Piles [18]-South pacific, FijiDecoction (I)Syphilis [38]-Flower budAnarGopalganj, Bihar(I)Worm infestation, Cough [39]MadhulaiSalem District, Tamil Nadu(I)Cough, Dysentery, Diarrhoea [40]-MexicoDecoction (E)Oral cavity inflammation [41]DalimAssam, IndiaJuice (E)Epistaxis (Nasal Bleeding) [35]DalimRajbahshis, AssamExtract (I)Gastritis <sup>[42]</sup> DalimCachar, AssamJuice (I)Dysentery [43]AnarJharkhand(I)Post-delivery complaints <sup>[14]</sup> DalimbaCoastal district, Odisha15-16 fresh Leaf Juice (1 spoon) twice daily (I)Diarrhoea [44]-PhilippinesDecoction (E)Oral cavity inflammation [45]-Ibarkhand(I)Post-delivery complaints <sup>[14]</sup> AnarJharkhand(I)Post-delivery complaints <sup>[14]</sup> -PhilippinesDecoct	Dadam	Junagadh, Gujarat	Decoction (I)	Diarrhoea and Abdominal bloating <sup>[31]</sup>
Shi liu pi (member of the second seco	-	Northern part of Saudi Arabia	Paste of fruit rind	Bed sore <sup>[32]</sup>
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- Philippines Decoction (E) Oral cavity inflammation <sup>[45]</sup> Stem / Shoot			15-16 fresh Leaf Juice (1 spoon) twice daily	• •
Stem / Shoot	-	Philippines		Oral cavity inflammation <sup>[45]</sup>
		<u>F</u> F		
	Dalim	Tinsukia, Assam	Decoction (I)	Diarrhoea <sup>[13]</sup>

Kamphoi	Manipur	(I)	Worm infestation, Diarrhoea, Dysentery. <sup>[12]</sup>
Anar	Jalandhar District, Punjab	(I)	Anaemia, Dental Problems <sup>[46]</sup>
		Bark / Stem Bark	•
Darima	Uttrakhand	(I)	Diarrhoea, Dysentery / Worm infestation. [11]
Kamphoi	Manipur	(I)	Worm infestation, Diarrhoea, Dysentery. <sup>[12]</sup>
	-	Paste made up of bark of Punica granatum	
Dalim	Rajbahshis, Assam	pounded with few drops of extract of	Epistaxis (Nasal Bleeding) <sup>[42]</sup>
		Cynodon dactylon. (E)	
Anar	Gopalganj, Bihar	(I)	Worm infestation, Cough <sup>[39]</sup>
Dadu	Himachal Pradesh	-	Worm infestation <sup>[36]</sup>
Darooni	Udhampur, Kashmir	Powder- dried and powdered stem bark (I)	Worm infestation <sup>[22]</sup>
-	Mauritius	Powder- macerated bark extract	Asthma, Diarrhoea, Dysentery, Worm infestation <sup>[47]</sup>
	•	Root	·
Dalim	Tinsukia, Assam	Juice (I)	Urinary Disorder [13]
Kamphoi	Manipur	(I)	Worm infestation, Diarrhoea, Dysentery. <sup>[12]</sup>
	· · · · · · · · · · · · · · · · · · ·	Root Bark	· · · · ·
-	Lucknow, Uttar Pradesh	(I)	Worm infestation, Nausea <sup>[48]</sup>
Madhulai	Nilgiri District, Tamil Nadu.	(I)	Worm infestation, Nausea <sup>[49]</sup>
	·	Seed and Leaf	·
Dalimba	Odisha	Paste (I)	Diarrhoea and Dysentery <sup>[50]</sup>
	·	Fruit, Leaf and whole Plant	· · · ·
			Cardiac diseases, Eye – ear disorder,
Anar	Siwan, Bihar	-	Migraine, Jaundice, Vomiting, Piles
			Worm infestation <sup>[51]</sup>
		Fruit and bark	
Darimba	Chandrapur, Maharashtra	-	Dysentery <sup>[52]</sup>
		Twig	
Dalimba	Kalahandi District, Odisha	Tooth Brush (E)	For strong teeth and healthy gum <sup>[20]</sup>
		Leaf, bud or Unripe fruit	
		Paste with rice washed water administrated	
Dalimba	Ganjam District, Odisha	along with a minute pinch of Opium half cup	Diarrhoea <sup>[53]</sup>
		taken twice a day. (I)	
		Part not specified	
Anar	Iran	(I)	Gastritis <sup>[54]</sup>
			Leucorrhoea, Stomach pain, Urinary
-	Indonesia	(I)	Disorder, cardiac diseases, cough and
			Diarrhoea <sup>[55]</sup>
-	Bhutan	(I)	Loss of appetite and Diarrhoea [56]
Anar	Jaunsar Bawar Hills, Uttar Pradesh	Paste (E)	Snake Bites <sup>[57]</sup>

## **Research update**

Many of the ethnomedicinal claims on PG are already noted in the classical texts of Ayurveda. But there are certain claims which are not noted in classical texts of Ayurveda also. When analysed critically it is observed that PG is being included in many classical formulations which are indicated in many of the ethnomedicinal claims. Details of updated pharmacological and clinical research reported on PG are presented in systematic manner in Table 3.

It is observed that many of ethnomedicinal claims have also been scientifically proved through pharmacological and clinical studies.

Table 3: Ethnomedicinal claims, Ayurvedic indications, formulations and reported studies of *P. granatum*.

	Ethnomedicinal claims	Indications of PG in Ayurveda	Ayurvedic formulations containing	PG Reported research activities	
	Gastrointestinal system				
1.	Diarrhoea / Dysentery	Atisarajita <sup>[58]</sup> Pravahika <sup>[59]</sup>	-	Antidiarrhoeal activity [60]	
2.	Worm Infestation	-	Dadimadi Kashaya <sup>[61]</sup>	Anthelminthic activity <sup>[62]</sup>	
3.	Vomiting	Chardi <sup>[58]</sup>	-	-	
4.	Antispasmodic	-	Dadimadi Churna <sup>[63]</sup>	Analgesic activity [64]	
5.	Gastritis	Daha <sup>[65]</sup>	-	Gastroprotective activity [66]	
6.	Piles	Arshajita <sup>[67]</sup>	-	-	
7.	Rectal prolapse		Ajakadi Yoga <sup>[68]</sup>	-	
Respiratory system					
8.	Asthma	-	Dadimadi Churna <sup>[69]</sup>	Effect on COPD <sup>[70]</sup>	
9.	Cough	-	Dadimadi Ghrita <sup>[71]</sup>	Effect on COPD <sup>10</sup>	
Cardiovascular system					
10.	Heart problem / High BP	Hridya <sup>[65]</sup>	-	Antihypertensive activity <sup>[72]</sup> ; Cardio protective activity <sup>[73]</sup>	
	Urinary system				
11.	Frequent urination	-	Dadima Kanji <sup>[74]</sup>	Nephro protective activity [75]	

	Reproductive System					
12.	Premature ejaculation	Shukrala <sup>[65]</sup>	-	Sperm Protective activity [76]		
13.	Amenorrhea / Uterine bleeding	-	Jambavadi Ghrita <sup>[77]</sup>	Estrogenic activity [78]		
14.	Post-delivery complication	-	Mangalyaka Ghrita <sup>[79]</sup>	Uterine Contractile activity <sup>[80]</sup>		
15.	Leucorrhoea	-	Somanatha Rasa <sup>[81]</sup>	-		
	Others					
16.	Conjunctivitis / Cataract	-	Dadima Patra Lepa <sup>[82]</sup>	-		
17.	Dental / Strong Gum	-	Dadimadi Churna <sup>[83]</sup>	Antigingivitis activity / Antiplaque activity <sup>[84]</sup>		
18.	Epistaxis (nasal Bleeding)	-	Dadima Phalatvaka Churna <sup>[85]</sup>	-		
19.	Migraine	-	Dadimi Kalika Nasya <sup>[86]</sup>	-		
20.	Memory enhancer	Medhya <sup>[65]</sup>	-	Memory Enhancement [87]		
21.	Fever	Jvara <sup>[65]</sup>	-	-		
22.	Anaemia	-	Dadima Ghrita <sup>[88]</sup>	-		
23.	Jaundice	-	-	Hepatoprotective activity <sup>[89]</sup>		
24.	Pimples, Skin diseases	-	Vasarudra Taila <sup>[90]</sup>	Skin whitening activity [91]		
25.	Diabetes	-	Dadimadi Ghrita <sup>[92]</sup>	Antidiabeteic activity <sup>[93]</sup>		

#### Conclusion

Present ethnomedicinal review highlights the multiple use of seven different parts of *Punica granatum* L. to combat 42 disease conditions. The plant is maximum reported for its use in diarrhoea, worm infestation, dysentery etc. Fruit, fruit rind and leaf are maximum reported parts used. Some of the ethnomedicinal claims for its use in various disease such as vomiting, piles, rectal prolapse, conjunctivitis / cataract, leucorrhoea, epistaxis, migraine, fever and anaemia are not validated yet through scientific studies. The present review may help to better utilization of the commonly available medicinal plant, for its pharmacological actions.

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