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### RESEARCH ARTICLE

#### DARVYADILEHA: A DRUG REVIEW

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#### Abstract

Darvyadi Leha is a herbo-mineral composition used in the treatment of Pandu Roga. Pandu Roga can be co-related with iron deficiency anemia (IDA) due to close clinical presentation. This formulation is mentioned in Charak Samhita under Pandu Roga Prakran. As nutritional anemia has an immense prevalence all over India and there are many side effects of oral allopathic iron preparations, therefore Ayurvedic herbo-mineral medications such as Darvyadi Leha can be a better alternative for the treatment of IDA. It is a safe and effective formulation with almost no adverse effects. This article reviews Ayurvedic properties of various ingredients of Darvyadi Leha and discusses how combination of all its ingredients makes the drug so effective. The articles were searched from various indexing sites including Scopus, PubMed, google scholar. The key words used were 'Pandu Roga', 'Iron Deficiency Anemia', 'Ayurveda'.

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#### Introduction:-

Iron deficiency arises when there is an imbalance between the iron intake, iron stores, and the body's loss of iron and are insufficient to support production of erythrocytes to a full extent leading to iron deficiency anemia.<sup>1</sup> Reduced erythrocyte count or a hemoglobin (Hb) value 5 percentiles below the normal hemoglobin value specified for that age in healthy individuals is defined as anemia.<sup>2</sup> Cases of death due to IDA are rare but it impacts the human health significantly. Iron deficiency anemia: a common and curable disease.<sup>3</sup> Anemia is very prevalent among the young children and it continues to remain covering 70% in most parts of India and Asia. Despite of running a policy and anational program that has been initiated for a long time.<sup>4</sup> Nutritional anemia in young children with focus on Asia and India. A WHO report named 'preventing risk and promoting healthy life' quoted iron deficiency as 9 of 26 preventable risks to disease, disability and death over worldwide today.<sup>5</sup>

Description of Pandu Roga is found in various places in Ayurvedic literature i.e., Kashyap Samhita, Charak Samhita, Sushrut Samhita, Ashtang Sangrah and Ashtang Hridaya. Brihatrayi of Ayurveda has described Pandu Roga however Acharya Kashyap has specifically mentioned symptoms of the disease as Swetakshi (Pallor of sclera), Naabhyam Samantatah Shothah (periumbilical oedema) and Akshikoot Shoth (periorbital oedema), Nashtagni (indigestion) and Nirutsah (fatigue) in infants and young children.<sup>6</sup>

Darvyadi Leha is an Ayurvedic preparation used in the management of Pandu Roga (IDA).<sup>7</sup> All its ingredients directly or indirectly help in elevating blood iron concentration. Ingredients of the Darvyadi Leha are Daruharidra,

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Haritki, Vibhitak, Aamalki, Shunthi, Pippli, Marich, VidangandLauhBhashma.Ayoraj (LauhaBhasma) is well indicated in PanduRoga.<sup>7</sup>

**AIM:**

To evaluate the role of Darvyadi Leha on Pandubased on itsAyurvedicpharmacologicalproperties.

**Methodology:-****Table No. 1:-**Description Of Ingredients Of Darvyadileha

NO.	CONTENT	RASA	GUNA	VIRYA	VIPAKA	DOSH KARMA
1.	Daruharidra <sup>8</sup>	Tiktakashya	Laghu, Ruksha	Ushna	Katu	Kaph-pitthara
2.	Haritki <sup>9</sup>	Pancharasa (lavanvarjit)	Laghu, Ruksha	Ushna	Madhur	Tridoshhara
3.	Vibhitak <sup>10</sup>	Kashaya	Ruksha, Laghu	Ushna	Madhur	Tridoshara
4.	Aamalki <sup>11</sup>	Panchrasa (lavanrahit)	Laghu, Ruksha, Sheeta	Sheeta	Madhur	Tridoshara
5.	Shunthi <sup>12</sup>	Katu	Laghu, Snigdha	Ushna	Madhur	Kaph-Vatahara
6.	Pippali <sup>13</sup>	Katu	LaghuSnigha, Tikshna	Anushana-sheet	Madhur	Vata-Kaphhara
7.	Marich <sup>14</sup>	Katu	Laghu,Tikshna	Ushna	Katu	Kapha-vatashamak
8.	Vidang <sup>15</sup>	Katu	Laghu,Ruksha,Tikshna	Ushna	Katu	Kapha-vatashamak
9.	Ayoraj <sup>16</sup>	Tikta, Madhura, Kashaya	Sara, Guru,Ruksha	Sheeta	Madhura	Kapha-Pittshamak
10.	Ghrit <sup>17</sup>	Madhur	Guru, Snigdha	Sita	Madhur	Vatapittsamak
11.	Madhu <sup>18</sup>	Madhur, Kasaya	Laghu(sushrut)	Sita	Madhur	Vattpittaghan

**Table No. 2:-**

NO.	NAME	BOTENICAL NAME	FAMILY	PART USED	PROPORTION
1.	Daruharidra <sup>19</sup>	Berberis aristata	Berberidaceae	Root	1
2.	Haritki <sup>20</sup>	Terminalia chebula	Combretaceae	Fruit	1
3.	Vibhitak <sup>21</sup>	Terminalia bellirica	Combretaceae	Fruit	1
4.	Aamalki <sup>22</sup>	Emblica officinalis	Phyllanthaceae	Fruit	1
5.	Shunthi <sup>23</sup>	Zingiber officinale	Zingiberaceae	Rhizome	1
6.	Pippali <sup>24</sup>	Piper longum	Piperaceae	Fruit	1
7.	Marich <sup>25</sup>	Piper nigrum	Piperaceae	Fruit	1
8.	Vidang <sup>26</sup>	Embeliaribes	Primulaceae	Fruit	1
9.	Ayoraj <sup>27</sup>	Incinerated Iron	-	-	1

**1. Daruharidra<sup>28</sup>**

➤ **Botanical name:** -Berberis aristate

- **Family:** - Berberidace
- **Botanical Description:** - Daruharidra consists of dried stem of BerberisaristataDC.an erect, spinous, deciduous shrub, usually 1.8-3.6 m in height.
- **Habitat:-** <sup>29</sup>Found in the Himalayan ranges at an elevation of 1000-3000 m, and in the Nilgiri hills in south India.
- **Chemical constituents:** - Daruharidra contains not less than 0.4 per cent of berberine when assayed., palmatine, oxyberberine, oxyacanthine, karachine.
- **Important formulations:** - Ashvagandharishta, BhrigarajaTaila, Jatyaditaila, KhadiradiGutika, Khadirarista, Triphala Ghita.
- **Therapeutic uses:** - Atisara (diarrhoea due to indigestion), Kandu (pruritis), Kapharoga (disease due to kaphadosa), Karnaroga (disease of ear), Medoroga (obesity), Mukharoga (disease of mouth), Netraroga (disease of eye), Prameha (increased frequency and turbidity of urine), urustambha (stiffness in thigh muscles), Vrana (wound).
- **Dose:** -Churna (powder): 3-6 g
- **Nighantu:** - <sup>30,31,32</sup>
- 1) **DhanvantariNighantu:** - Has describedDaruharidraUnder GuduchyadiVarga .
- **Gunkarma:** Tikt, Ruksha, UsnaVirya, Vrana, Prameha , Karna Roga, Netra Roga, Much Roga etc.
- 2) **KaiyadevNighantu:-**Has taken described it under AushadhiVarga.
- **Gunkarma:-**Karna, Netra, Mukh Roga
- 3) **BhavprakashNighantu:-**Has described it under HaritakiyadiVarga.
- **Gunkarma:-**Deepan, Pachan, Grahi, Pittvirechak, Jwarhar.

## 2.Haritki-

- **Botanical name:** <sup>33</sup>-Terminalia chebula
- **Family:** - Combretaceae.
- **Habitat** <sup>34</sup>-Abundant in Northern India. Also occurs in the forests of Assam, West Bengal, Bihar, Assam, especially in Konkan.
- **Chemical constituents:** Tannins, anthraquinones and polyphenolic compounds.
- **Important formulations:** -TriphalaChurna, TriphaladiTaila, Abhayarista, Agastya HaritkiRasayana, CitrakaHaritaki, DantiHaritaki, DasmulaHaritki, Brahma Rasayana, AbhayaLavana, PathyadiLepa.
- **Therapeutic uses:** -Shotha, Arsa, Aruchi, Hrdroga, Kasa, Pandu, Prameha, Udavarta, Vibandha, Jeernajwara, Visamajvara, siroroga, Tamakaswasa,Gulma, Udararogaetc.
- **Dose:** 3-6 g of the drug in powder form.
- **Nighantu:** - <sup>35,36,37</sup>
- 1) **DhanvantariNighantu**-Has mentioned it under GuduchyadiVarga.
- **Gunkarma**-Kashaya, Amla, Katu, Tikt Madhur, Tridoshnashak, Lekhniya, LaghuMedhya, Chakshushya, Prameha, Kushtha, Vrana, Chhardi, Shoth, Vaatrakta, Mutrakrichraetc.
- 2) **KaiyadevNighantu** - Has describedit under AushadhiVarga.
- **Gunkarma**- Madhur vipaka,ruksha, laghu, ushnaveerya, aayushya, branhandeepan, pachan, budhivardhak, rashyan, chakshushyaetc.
- 3) **BhavprakashNighantu**- Has taken it under HaritkiyadiVarga.
- **Gunkarma**- PanchrasaAlavana, RukshaUshna, Deepniya, Madhur Vipaka,Medhya, Rasayani, Chakshushya, Laghu, Branghan, Swaas, Kaas Prameha, ArshaKushtha, ShothaUdraKrimietc.

## 3.Vibhitaki: -

- **Family:** - Combretaceae<sup>38</sup>
- **Botanical name:** -Terminalia bellirica
- **Family:-**Combretaceae.
- **Botanical Description:** - Vibhitaki consists of pericarp of dried ripe fruits of TerntinaliabelericaRoxb. (Fam. Combretaceae), a large deciduous tree, 10-12 m or more high, commonly found in plain and forests upto 900 m elevation, fruits ripen towards November.
- **Habitat:** -<sup>39</sup>Throughout deciduous forests of India.
- **Chemical constituents:** -Gallic acid, tannic acid and glycosides.
- **Important formulations**– TriphalaChurna, TriphaladiTaila, LavanagadiVati etc.

- **Therapeutic uses** - Chardi, Kasa, Krmiroga, Vibandha, Svarabheda, Netraroga etc.
- **Dose** - 3-6 g of the drug in powder form.
- **Nighantu:-**<sup>40,41,42</sup>
- 1) **DhanvantariNighantu-** Has mentioned it under GuduchyadiVarga.
- **Gunkarma-**KatuVipaka, LaghuGuna, Sar, Chaksusya, Kaas, Netra Mukhroga etc.
- 2) **KaiyadevNighantu-** has taken it under AashadhaVarga.
- **Gunkarma-** Kashya, Madhur Vipaka, PittkaphNashak, UshnaVirya, Sheetsparsha, Krimighnaetc.
- 2) **BhavprakashNighantu-** Has taken it under. HaritkiyadiVarga.
- **Gunkarma-** Madhur Kashya, Kaphpittnut, Ushnaveerya, Himsparsha, Bhedhan, Kaasnashan, Ruksha, Netrahit, Keshyam.
- 4. **Aamalki:-**
- **Botanical name:** -Emblica officinalis (Phyllanthus emblica)<sup>43</sup>
- **Family:** - Euphorbiaceae.
- **Botanical Description:-**Aamalki consists of fresh fruit pulp of Emblica officinalis Gaertn. (Fam. Euphorbiaceae); a small or medium sized tree, found in mixed deciduous forests, ascending to 1300 m on hills and cultivated in gardens and home yards.
- **Habitat:** -<sup>44</sup> Native to tropical Southeast Asia; distributed throughout India; also planted in public parks.
- **Chemical constituents:** - Ascorbic acid and tannins.
- **Important formulations:** -Cyavanaprasha, DhatriLauha, DhatriyadoGhrta, Triphalachurna etc.
- **Therapeutic Uses** - Raktapitta, Amlapitta, Premeha, Daha
- **Dose** - 3-6 g of the drug in powder form.
- **Nighantu:-**<sup>45,46,47</sup>
- 1) **DhanvantariNighantu-** Has described it under GuduchyadiVarga.
- **Gunkarma-** Kashya, KatuTikta Rasa, Tridoshar, Vrishya, Jwaragham, Tridoshamaketc.
- 2) **KaiyadevNighantu-**Has been mentioned under AushadhiVarga.
- **Gunkarma-** Amla Sheet Virya, SwedaMedrogaNashak, SukraJanaketc.
- 3) **BhavprakashNighantu-**Has described it under HaitkyadiVarga.
- **Gunkarma-** Raktapitt, Pameha, Param Vrishya, Madhur, Sheet, Ruksha, Kashya etc.
- 5. **Sunthi: -**
- **Botanical name:** - Zingiber officinale<sup>48</sup>
- **Family:** - Zingiberaceae.
- **Reginal names:** -
- **Botanical Description:** - Sunthi consists of dried rhizome of Zingiber officinale Roxb. (Fam.Zingiberaceae), widely cultivated in India, rhizomes dug in January-February, buds and roots removed, soaked overnight-in water, decorticated, and sometimes treated with limeand dried.
- **Habitat:** -<sup>49</sup>Native to South east Asia; now cultivated mainly in Kerala, Andhra Pradesh, Uttar Pradesh, West Bengal, Maharashtra.
- **Chemical constituents:** - Essential oil, pungent constituents (gingerol and shogaol), resinous matter and starch.
- **Important Formulations** - Saubhagyasuthi, Trikau, SaubhagyaVati, Vaisvanara Churaetc.
- **Therapeutic Uses** - Agnimandya, Ávasa, Adhmana, Amavata, Pandu, Udararoga.
- **Dose** - 1-2 g of the drug in powder form.
- **Nighantu:** -<sup>50,51,52</sup>
- 1) **DhanvantariNighantu-** Has described it under ShatpushpadiVarga.
- **Gunkarma-** Snighdh, Usnveerya, Katu, VajikaranShoth, Aruchi, Udaroga etc. page 85
- 2) **KaiyadevNighantu-** Has mentioned it under AushadhiVarga.
- **Gunkarma-** Teekshna, Guru, Pachak, Shukravardhak, Katu, UshnaVirya etc.
- 3) **BhavprakashNighantu** - Has mentioned it under HaritkyadiVarga.
- **Gunkarma-** Pachak, Kafaghna, Vathar,Udarshool, Hrit- Shool
- 6. **Pipli:-**
- **Botanical name:** -Piper longum Linn<sup>53</sup>
- **Family:** - Piperaceae.

- **Synonym:** - Kana, Krishna, Kola, Chapala, Teekshnatandula, Magadhi, Ushna, Upakulya.
  - **Regional names:** Pipar (Hindi), Pippalu (Telugu), Hippali (Kannada), Pippali (Malyalam), Long Pepper (English).
  - **Botanical Description:** - An aromatic slender climber Stems - Creeping, jointed, attached to other plants while climbing. Fruits - yellowish, orange, sunk in fleshy spike.
  - **Habitat:** -<sup>54</sup> Found in the hotter parts of India, from central Himalayas to Assam. from Konkan to Kerala.
  - **Chemical constituents:** Two alkaloids piperlongumine and piperlonguminine, terpinolene, zingiberene, phenyl ethyl alcohol and two sesquiterpenes, piperine, pipartine, reducing sugars.
  - **Important formulations:** PippalyadiGhrita, Pippalyasava, VyoshadiVati, ChandrodayaVarti.
  - **Therapeutic uses:**
  - **Dose:** Powder ½ -1 gm
  - **Nighantu:-**<sup>55,56,57</sup>
- 1) **DhanvantariNighantu-** Has mentioned it under ShatpushpadiVarga.
    - **Gunkarma-** Katu Ras, Madhur Vipak, Sheet Virya, Snigdha, Tridoshar, Trishna, Jwar, Udarroga, Krimi, Udarrogaetc.
  - 3) **KaiyadevNighantu-** Has mentioned it under AushadhVarga.
    - **Gunkarma-**
      - **AdraPippli-** Sheetal, Guru, Madhur, Snighdha, Kafkarak etc.
      - **RukshaPippli-** LaghuKatu Ras, Madhur Vipak, Snighdha, Kafvaatnashaketc.
  - 2) **BhavprakashNighantu-** Has mentioned it under HaritkyadiVarga.
    - **Gunkarma-** Rasayan, Sugandhit, Deepak Udarshool Kaas Swash, Jirnajwara, PrasutiJwara, Aamvat etc.

#### 7. Marich:-

- **Botanical name:** -PiperNigrum<sup>58</sup>
  - **Family:** -Piperaceae.
  - **Synonyms-**  
 Sans.: Vellaja, Krsna, Usana, Beng. :Golmorich, Kalamorich, Morich Eng. : Black Pepper Guj. : Kalimori, Hindi. : Kalimirch, Kan. : Karimonaru, Menaru, Mal. : Kurumulaku  
 Mar. : Kalamiri, Punj. :Galmirich, Kalimirch, Tam. : Milagu, Tel. : Miriyalu, Marichamu  
 Urdu: FilfilSiyah, Kalimirich
  - **Botanical Description:-**(Piperaceae); it is a climber. Fruits ripen from december to march, depending upon climatic conditions; fruits harvested from December to April.
  - **Habitat-**<sup>59</sup>Native of the Indo-Malaysian region; cultivated in Western Ghats, Karnataka, Maharashtra, Assam and Kerala.
  - **Chemical constituents:** Alkaloids (Piperine, Chavicine, Piperidine, Piperetine) and essential oil.
  - **Important Formulations-** MarichadiGutika, MarichadiTaila, Trikatuchurna etc.
  - **Therapeutic Uses-** Svasa, Sula, Krmiroga, Tvagrogaetc.
  - **Dose -** 250 mg - 1 g of the drug in powder form.
  - **Nighantu:-**<sup>60,61,62</sup>
- 1) **DhanvantariNighantu-** Has described it under ShatpushpadiVarga.
    - **Gunkarma-** Katu, Tikt, UshnVirya, Pittkarak, KafvaatShamak, Krimi Har.
  - 2) **KaiyadevNighantu-** Has described it under AushadhiVarga
    - **Gunkarma-** Katu Ras KatuVipakaUshnaVirya, Laghu, Agni Deepak, Ruchikarak, Teekshna, Ruksha, Vatka - Nashaketc.
  - 3) **BhavprakashNighantu-** Has described it under HaritkyadiVarga.
    - **Gunkarma-** Pachak, Agni Deepak, Ruchikar, Swedkar, Agnideepak, Karimiharetc.

#### 8. Vidang:-<sup>63</sup>Primulaceae

- **Botanical name:** -Embelliaribes
- **Family:** -Myrsinaceae.
- **Botanical Description:-** Vidanga consists of dried mature fruits of EmbelliaribesBurm. f. (Fam. Myrsinaceae), large scandent shrub with long slender, flexible branches, distributed throughout hilly parts of India upto 1600 m.
- **Habitat:**<sup>64</sup> Throughout India.
- **Chemical constituents:** Benzoquinones, alkaloid (Christembine), tannin and essential oil.

- **Important Formulations** - Vidangarita, VidangaLauha, VidangadiLauhaetc.
- **Therapeutic Uses**- Sula, Krimiroga, Udararoga etc.
- **Dose**- 5-10 g of the drug in powder form.
- **Nighantu**:-<sup>65,66,67</sup>
- 1) **DhanvantariNighantu**- Has mentioned it under ShatpushpadidwitiyVarga.
  - **Gunkarma**-Ruksha, UshnaVirya, Katu Ras, IshatTikta,VaatkaphNashak,Vishvikar , Krimi Roga etc.
- 2) **KaiyadevNighantu**- Has mentioned it under AushadhiVarga.
  - **Gunkarma**- KatuVipaka, UshnaVirya, Ruksha, Laghu, Agni Deepak, Ruchikarak, KrimiVaatkaphNashak etc.
- 3) **BhavprakashNighantu**- Has mentioned it under HaritkyadiVarga.
  - **Gunkarma**- KatuTeekshna, Ushna, Ruksha, Laghu, Aadhman, Udar, Krimi, Vaat, Vibandha etc.
- 9) **LauhBhashm**:-
  - **TherapeuticIndications**:Vrishya, Aayushya, Vaystambhak, Varnya, Medhya, Chakshushya, ShreshtamRasayanetc.<sup>68</sup>
  - **Dose**:<sup>1</sup>/<sub>4</sub>- 2 rattiRatti/ day.
  - **Containdications**- Kushmand, Tiltail, Mash, Raai, Madhya, Amladravya ,Massor.
  - **Important formulations**- Aarogyavardhinivati, Chandraprabhavati, DhatriLauh, NavayasLauh, SaptamritLauh, PradarantakLauh etc.
  - **Nighantu**:-<sup>69,70,71</sup>
  - 1) **DhanvantariNighantu**- Has mentionedit under SwarnadiSashthoVarga.
    - **Synonyms**- Shashtra, Ghan, Shiv, Veer, Bhramar, Krishna Laugh.
    - **Gunkarma**- Kashya Ras, Shoth, Shool,Arsha, Kushtha, Pandu, Pramegha, Rasayan etc.
  - 2) **KaiyadevNighantu**- Has mentionedit under DathuVarga.
    - **Synonyms**-Aya, Kalayas, Teekshna, Paarvas, Ghan,Krishna,Veer, Aayas etc.
    - **Gunkarma**- Tikta, Kashya, Madhur, Saarak, Sheetvirya, Guru, Ruksha, Vish, Shool, Shoth, Arsha, Kusth,PanduPrameha, MedoRoga,Krimi Roga etc.
  - 3) **BhavprakashNighantu**- Hasdescribed it under Dathu Verga.
    - **Synonyms** - Shashtark, Teekshna, Pinda, Kalayas, Ayas.
    - **Gunkarma**- Tikta, Sar, Sheet, Madhur, Guru, Ruksha, Chaksusya, Lekhan, ShothArsha, Pleeha, Pandu, Med, Prameh, Krimi, Kushtha etc.

### Discussion:-

DarvyadiLehacontains 9 ingredients. One of its ingredients is Ayoraj (LauhaBhasma) which makes formulation ideal indication for the treatment ofPanduRoga.Other ingredients of the preparation are DaruHaridra, Haritki, Vibhitak, Aamalki, Shunthi, Pippli, Marich, Vidang.Dauharidra has RaktaShodhak (blood purifying), ChakshuyaDeepan and Varnya properties .<sup>72</sup>Triphala and Trikatuhave role in the maintenance of digestive fire (Jatharagni)<sup>73</sup>moreover amla contains ascorbic acidwhich facilitates iron absorption by forming a chelate with ferric iron at acid pH that remains soluble at the alkaline pH of the duodenum.<sup>74</sup>Vidanga has Krimiharaproperties and worm infestation is usually seen in children suffering from PanduRoga. Hence the formulation Darvyadi Leha is most likely to provide iron supplementation, work as blood purifier and that too with the maintenance of digestive fire, without producing any aftereffects.

### Conclusion:-

It is concluded from the study thatDarvyadiLehais an effective and safe Ayurvedic formulation for the management of Pandu Roga (IDA). It has almost nil adverse effects as compared to conventional treatment drugs for anemia. Hence, it is recommended that considering the efficacy and cost effectiveness of Ayurvedic formulations, they should be included in National health programs concerning to prophylaxis and treatment of IDA.

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