

**CRITICAL REVIEW ON ARKA (AN AYURVEDIC DOSAGE FORM)
W.S.R. TO “BRUHAT-NIGHANTURATNAKARA” IN RELATION WITH
MODERN PHARMACOLOGY**

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Article Received on
22 July 2019,

Revised on 12 August 2019,
Accepted on 02 Sept. 2019,

DOI: 10.20959/wjpr201910-15833

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ABSTRACT

Arka kalpana is one of the important drug dosage form in *Bhaishajya kalpana* which is the branch of *Ayurveda*. *Bhaishajya kalpana* deals with the different kind of dosage forms and their therapeutic utility. According to *Ravan's Arkaprakasha*, *Arka* is the basic *Kashaya kalpana*. *Arka* is the preparation which is obtained by distillation of liquid or drug soaked in water and extracted by *Arkayantra*. According to modern science. *Arka* can be compared as aqueous extract and *Arka kalpana* can be compared to distillation. A lot of references were found of *Arka* in the management of various diseases. *Bruhatnighanturatnakara* has mentioned 188 number of *Arka* of single drugs and their indications. Therapeutically proven activities of

aqueous extract of single drug are anti-inflammatory, anti depression, anti asthmatic, anti venom etc. Considerable work has been done to explore the importance of *Arkakalpana* and the classic for its contribution. Here we present a review on *Arka* of a single drug in relation with therapeutically proven action in modern pharmacology.

KEYWORDS: *Arka, Ayurveda, Kalpana, Bruhatnighanturatnakara.*

INTRODUCTION

Ayurveda is an archaic and experiential science of life, explains the principles for the maintenance of health and eradication of disease. Therefore, different dosage forms are evolved from time to time according to need. The idea behind the preparation of different

dosage form is to make more suitable to the body for better absorption and assimilation. *Arka kalpana* is one of the important drug dosage form. *Arka kalpana* is more potent in comparison to the other *kalpanas* due to having increased potency, reduced dose, more shelf life, fast action etc. There is no reference of *Arka kalpana* in *Bruhatrayi*. *Arka kalpana* is first mentioned by *Acharya Shodhal* in *Gadanigraha* in 12th century. It is widely described by *Ravan*^[1] in his book *Arkaprakasha*. *Ayurveda* is the science which has its own principles and that are different from modern pharmacological aspects. In *Ayurveda* the pharmacological actions of a drug are attributed to *Rasa panchakas* (i.e. *Rasa, Guna, Veerya, Vipaka, Prabhava*) and these are considered as foundation of *Dravyaguna shastra* or *Ayurvedic pharmacology*.

RESULTS AND DISCUSSION

The details of published pharmacological actions in relation with *Ayurvedic* references on *Arka* of single drug which is mentioned in this text is given as below.

Sr.No.	Drug	Indication	Classical references	Modern pharmacology
1.	<i>Amalaki</i> (<i>Emblica officinalis</i>)	<i>Mohanashana</i> ^[2]	There is no direct reference of the drug on <i>Mohanashana karma</i> . But it is having <i>Tridoshahara</i> ^[3] and <i>Vatanuloman</i> properties which help to reduce pathology of <i>Moha</i> .	Antidepressant activity:- The aqueous extract of fruits of <i>E. officinalis</i> in inbred adult male Swiss Albino mice weighing 25-30g and test was carried out by forced swim test (FST) and tail suspension test (TST). The result of this test showed the antidepressant activity of <i>E. officinalis</i> as comparable to the of standard antidepressant drug imipramine. ^[4]
2.	<i>Pippali</i> (<i>Piper longum</i>)	<i>Shoolahara, Aamavatahara</i> ^[5]	There is direct reference of the drug in these indications. <i>Acharya Charak</i> put <i>Pippali</i> in <i>Shoolaprashama Dashemani</i> ^[6] while <i>Acharya Bhavmishra</i> ^[7] indicated it in <i>Amavata</i> . Due to <i>Madhurvipak, A Snigdha guna</i> it checks <i>Vata</i> which are main factors for causing pain. while due to <i>Katu rasa, Laghuguna</i> it pacify <i>Ama</i> .	Antiarthritic effect:- The aqueous extract of <i>Piper longum</i> shows antiarthritic effect on CFA(Complete Freuds adjuvant) induced arthritis in rats. ^[8]
3.	<i>Jeeraka</i> (<i>Cuminumcyminum</i>)	<i>Garbhashaya shodhaka</i> ^[9]	<i>Bhavmishra</i> described it as " <i>Garbhashayavishuddhikrut</i> " ^[10] Having <i>Katurasa, UshnaVeerya</i> , it may possible to exert the action.	Antiinfertility:- The aqueous extract of seeds in doses of 150mg/kg and 200mg/kg p.o. Female rats during 1-7 days of gestation showed 100 and 80% anti-implantation effects respectively. ^[11]

4.	<i>Naga bhinna</i> (<i>Rauwolfiase rpentine</i>)	<i>Vishahara</i> ^[12]	In <i>Bhavprakashnighantu</i> , direct reference of the drug In the name of “Nakuli” it is indicated as “ <i>Bhogi-luta-Vruschika-aakhuVishanashini</i> ”. ^[13]	Antivenom activity: -James et al. explore the venom neutralizing potential of the aqueous extract of <i>R. serpentina</i> by procoagulant, direct, and indirect hemolytic activities. In it, <i>R. serpentina</i> plant extract was effectively neutralize all the toxic effects induced by the Daboiarusselli venom. ^[14]
5.	Katphala (<i>Myricaescul anta</i>)	<i>Shwasahara</i> ^[15]	It is said by Acharya Bhavmishraas “ <i>Hanti Shvasa</i> ”. ^[16] It is suitable for this action on the basis of its properties such as <i>Katu, Tikta, Kashayarasa</i> and <i>Kaphaharakarma</i> .	Antiasthmatic activity: -The water extract of the bark even at lower doses (27 and 54 mg/kg, p.o) was found to possess more potent antiasthmatic activity than ethanol extract by showing significant protection against histamine aerosol-induced bronchospasm in guinea pigs and by relaxing histamine-induced guinea pig tracheal chain contraction. ^[17]
6.	Rasanjana (Extract of berberis)	<i>Vranadoshahara</i> ^[18]	In <i>Bhavparkashnighantu</i> , It is said as “ <i>Vranadoshahrut</i> ”. ^[19] Having <i>Katu, Tiktarasa &Kaphahara</i> properties which may be useful in <i>Vrana</i> .	Wound healing effect: -The aqueous extracts of the plant roots were examined using incision, excision and dead wound space models of wound repair and shows the increased the area of epithelization and in breaking potency. ^[20]
7.	<i>Gokshura</i> (<i>Tribulusterr estris</i>)	<i>Mootrakrauchhara</i> ^[21]	In <i>Bhavparkashnighantu</i> , It is said as “ <i>Kruchchhanut</i> ”. ^[22] Having <i>Madhura Rasa & Sheetaveerya</i> it acts on <i>Pittadosha</i> and act as promotes diuresis.	Diuretic action: -An aqueous extract of <i>T.terrestris</i> , in oral dose of 5g/kg, elicited a positive diuresis in male rats and Guinea pig, which was slightly more than frusemide. ^[23]
8.	Vajree (<i>Euphorbia nerifolia</i>)	<i>Vranavikarahara</i> ^[24]	It is said as “ <i>Vranaharet</i> ”. ^[25] Having <i>Katurasa, Tikshmaguna, Ushna veerya & Kaphahara</i> properties, it act as antimicrobial and indirectly helps wound to heal.	Wound healing property: - The aqueous extract of latex of <i>E. neriiifolia</i> was evaluated by excision wound and dead space wound methods and using guinea pigs. It showed the healing process by increasing the tensile strength, DNA content, epithelization and angiogenesis. ^[26]
9.	Saptla (<i>Euphorbia tirucalli</i>)	<i>.Shophahara</i> ^[27]	It is said as “ <i>Shophajit</i> ”. ^[28] To have <i>Tikta rasa, Laghuguna, Katuvipaka & Kaphaghna</i> properties, it can as <i>Amapachak</i> and perform the activity.	Anti-inflammatory activity: - The aqueous extract of latex of <i>E. tirucalli</i> were evaluated by carrageenan induced paw edema by Prabha et al., 2008. Ibuprofen was considered as standard drug and the results showed considerably (P < 0.01) inhibition of inflammatory edema in rats at dosages 30, 100 and 300 mg/kg extracts, respectively. ^[29]

10.	<i>Kanchnara</i> (<i>Bauhinia variegata</i>)	<i>Vranahara</i> ^[30]	It is said as “ <i>Vranapaha</i> ” ^[31] It improves the quality of blood. Due to such properties like <i>.Kashayarasa</i> , <i>Sheetaveerya</i> and <i>Kaphapittahara</i> properties.	Wound healing effect: -Excision and incision wound models in albino Wistar rats, were used to evaluate the wound healing activity of the aqueous extracts of root of <i>Bauhinia variegata</i> at dose of 200 and 400 mg/kg bw. It showed significant wound healing with comparable to the standard (framycetin) in excision wound model P (1) P. ^[32]
11.	<i>Ankota</i> (<i>Alangiumla marckii</i>)	<i>Shothahara</i> ^[33]	It is said as “ <i>Shophapaha</i> ” ^[34] Having <i>Katu</i> , <i>Kashayarasa</i> , <i>Tikshnaguna</i> & <i>Kaphanashana</i> properties, it does <i>Amapachana</i> and perform the activity.	Anti-inflammatory activity: -Animals were divided in five groups. The anti-inflammatory effects of the extracts were evaluated by measuring the paw volume after 0, 1, 2, 3 and 4 h of carrageenan administration by using a plethysmometer. ^[35]
12.	<i>Shankhapushpi</i> (<i>Convolvulus pluricaulis</i>)	<i>Smrutikara</i> ^[36] (Memory booster)	It is said as “ <i>Medhya</i> ” ^[37] due to its <i>Ushna veerya</i> , <i>Vatahara</i> properties and <i>Prabhav</i> .	Neuroprotective activity: -Aqueous extract of <i>Convolvulus pluricaulis</i> Choisy. exhibited potent neuroprotective activity through anti AChE and antioxidant activity. ^[38]
13.	<i>Dronapushpi</i> (<i>Leucas cephalotes</i>)	<i>Shophahara</i> ^[39]	It is said as “ <i>Shothajit</i> ” ^[40] Having <i>Katurasa</i> , <i>Rukshaguna</i> , <i>Ushnaveerya</i> & <i>Kaphahara</i> properties, it does <i>Amapachana</i> and perform the activity.	Anti-Inflammatory activity: -The water extract of <i>L. cephalotes</i> showed significant reduction in inflammation i.e. 80 % (100 mg/kg) followed by aqueous extract i.e. 58 % (100 mg/kg) compared to standard anti-inflammatory drug aspirin i.e 68.62% (25 mg/kg). ^[41]

The eternal science *Ayurveda* has its own ideology which is entirely different from modern pharmacological study. *Arka kalpana* has the significant role in traditional medicine. In present scenario, many researches of *Arka kalpana* have been carried out to explore the importance of *Arka kalpana* and its activity. But the published review on pharmacological evaluation on aqueous extract of a drug is not compared with *Ayurvedic* literature as above. The co-relation with current Pharmacological activities may be not completely validates *Ayurveda* actions. But in recent era, it can be accessed that the activities said by the *Acharyas* thousands of years ago can be carried out by the researches. Out of 188 extracts of single drug activities have been proven on 13 extracts of single drug. Further research should be done on remaining extracts.

CONCLUSION

In this review, we have presented the pharmacological activity and traditional uses of aqueous extract of a drug compared with *Ayurvedic* literature. The correlation about the activity of *Arka* and its traditional uses can be applicable in drug discovery.

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