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IJAPC

E ISSN 2350 0204

Vol 12 Iss 2 2020

GREENTREE GROUP PUBLISHERS (ggp)

A Critical Review on *Kharjuradi Manth* - An Ayurvedic Polyherbal Formulation for Alcoholism (Acute and Chronic Alcohol Addiction and Withdrawal)

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ABSTRACT

Alcoholism is addiction to the consumption of alcoholic drink. It is one of the major problems faced by the society. In *ayurveda* classics, a number of single drugs and formulations have been mentioned for treatment of alcoholism. *Kharjuradimanth* is one of the important and prestigious formulation which is successfully used since the ancient period. It is mentioned in many of *ayurveda* texts as *chakradutta*, *sharangadhar*, *bhaishajyaratnavali* and *bhaishajyakalpana*. It was first described in *chakradutta* written by *chakrapanidutta* in 11th century. The main aim of this review study is to understand the usefulness of *kharjuradimanth* in alcoholism on various aspects as the positive role of this formulation in avoiding harmful effects of alcohol consumption and to know the pharmacological actions of this formula on the level of *doshasand agni*. The *kharjuradimanth* contains seven ingredients as *kharjura*, *draksha*, *vrikshamala*, *amlaka*, *dadim*, *falsa*, *amalkiand* most of the ingredients having *vata* *pitta* *shamaka*, *agnideepaka*, *yakriduttejaka*, *hridaya*, *balya*, *mastishka-nadibalaprada*, *aruchinashaka*, *vedanasthapana* and other properties.

KEYWORDS

Kharjuradimanth, *Alcoholism*, *Yakriduttejaka*, *Vedanasthapana*



Greentree Group Publishers

Received 16/12/19 Accepted 23/01/2020 Published 10/03/2020

INTRODUCTION

In *ayurveda* alcohol is called *Madya*. *Madya* is mentioned in all the main text of *ayurveda* including *brihatrayi* and *laghutrayi*. Alcohol, acute alcoholism, chronic alcoholism and alcohol withdrawal has been mentioned in *ayurveda* under the heading of *Madya*, *Mada*, *Madatyaya*¹ and *Panapkrām*² respectively. According to *ayurveda* if *Madya* is taken in proper manner and dose suggested by *Ayurveda*, it is nectar (*Amrit*), if it is taken in excess doses it produces *Mada* (acute alcoholism) *Madatyaya* or *Panatyaya* (chronic alcoholism) and *panapkrām* (Alcohol withdrawal syndrome).

There is no clear description of addiction in *ayurveda* classical texts but according to its physical nature it can be said that it is a *vata-pittodrak* (*vata-pitta* dominant) and *mandagni* (*jatharagnidourbalya*) *avastha* and it mainly developed due to *muhurmuhursevana* of any substance for a long time. There is no single cause of alcoholism. In fact, there are dozens of risk factors including both internal and external factors that play a role in the development of an alcohol addiction. Internal factors include genetics, psychological conditions, personality, personal choice, and drinking history. External factors include family, environment, religion, social and cultural

norms, age, education, and job status. People found their all solutions by various addictions and one of which very common is that of alcohol. There are mainly two types of addiction, first is psychological and second one is physical. In psychological addiction the individual can become mentally dependent on certain substances or behaviors. It arises from the mind or emotions. And if the individual tries to stop the consumption of the substance, he may not be able to do it suddenly due to the psychological symptoms like craving. In physical addiction the individual develops increased tolerance for substance, and they will experience physical symptoms if they try to stop or reduce their intake. These physical symptoms are more commonly referred to as withdrawal symptoms³. Alcohol withdrawal symptoms occur when addicted individual reduces or stops alcoholic consumption. The withdrawal syndrome is largely a hyper-excitable response of the central nervous system due to lack of alcohol. Typical symptoms of withdrawal include nausea, vomiting, tremors, anxiety, agitation, paroxysmal sweating, disorientation, headache and hallucination.

The habit of alcohol consumption leads to its addiction and causes alcohol intoxication. In the current scenario; alcohol addiction is one of the major

problems faced by the society. The *kharjuradimanth* is an important formulation for alcoholism mentioned in many of *ayurveda* texts as *chakradutta*, *sharangadhar*, *bhaishajyaratnavali* and *bhaishajyakalpana*. It is first described in *chakradutta* written by *chakrapanidutta* in 11th century.

Manthkalpana-

Mantha is a preparation prepared by *dravyachurna* using cold water and churning. Definition of this preparation is first mentioned in *Sushrut samhita*⁴ and then by *Sharangdharsamhita*⁵. *Sharangdhar* mentioned that *mantha* is a type of *phanta*. But on the basis of its definition given by *Sushrut* and *Sharangdhar* it seems to be the *Himalike* preparation as for this preparation both are advised to use cold water. Whereas in *phanta* they advised to use hot water. Hence the statement of *Sharangdhar* is confusing.

Definition:-

Mantha is that which is prepared by using coarsely powdered drug in one *pala* quantity and mixed with 4 *pala* of cold water and churned well.

The definition of *mantha* given in *Sushruta* seems to be specific. It is in context of using *saktu* in the form of *mantha*. It is a semisolid preparation where *saktu* (flour prepared from roasted/fried barley/gram) mixed with ghee and cold water and made

in semisolid form is known as *mantha*. If desired, sugar, jiggery or honey may also be mixed with it for making the same more palatable⁶.

INGREDIENTS AND THEIR QUANTITY:-

➤ According to *chakradutta*, *bhaishajyaratnavali* and *bhaishajyakalpana* the contents of *Kharjuradimanth* shown below in table 1.

Table 1 contents of *Kharjuradimanth*

S.no.	Name of the ingredients	Quantity
1.	<i>Kharjura(seedless)</i>	1 part
2.	<i>Draksha</i>	1 part
3.	<i>Vrksamala</i>	1 part
4.	<i>Amlika</i>	1 part
5.	<i>Dadimbeej</i>	1 part
6.	<i>Parushaka</i>	1 part
7	<i>Amalaki</i>	1 part

According to *sarangadhar samhita* there is also seven ingredients in *kharjuradimantha* but there is *amlika* present two times in both *pakva* and *apakva* state. So *kharjuradimanth* contains 7 drugs which are predominantly having hepatoprotective properties and useful in alcoholic hepatitis, fatty liver and more likewise condition of liver. It is also useful in alcohol withdrawal symptoms as insomnia, depression, restlessness, fatigue, head and bodyache and weakness.

MATERIALS AND METHODS

Material related to this topic has been collected from various *Ayurveda* classical texts as *chakradutta*⁷, *sharangadharsamhita*⁸, *bhaishajya*

*ratnavali*⁹ and *bhaishajya kalpana*¹⁰, *charakasamhita*¹¹ and available commentaries on those texts and research articles of concerned subject published in various national and international journals.

AIMS AND OBJECTIVES

➤ To understand the usefulness of *kharjuradimanth* in alcoholism (acute and chronic alcohol addiction and withdrawal).

Table 2 Ingredients of *kharjuradimanth*

Sr. no	Name	Latin name	Family	Rasa	Guna	Virya	Vipaka
1.	<i>Kharjura</i>	Phoenix sylvestre	Arecaceae	<i>Madhura</i>	<i>Snigdha, guru</i>	<i>Sheeta</i>	<i>Madhura</i>
2.	<i>Draksha</i>	Vitisvinifera	Vitaceae	<i>Madhura amla</i>	<i>Snigdha, guru, mridu</i>	<i>Sheeta</i>	<i>Madhura</i>
3.	<i>Vrksamala</i>	Garciniaindica	Guttiferae	<i>Amla, madhura,</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Amla</i>
4.	<i>Amlika</i>	Tamarindus indica	Fabaceae (papilionaceae)	<i>Amla</i>	<i>Guru, Ruksha</i>	<i>Ushna</i>	<i>Amla</i>
5.	<i>Dadimbeej</i>	Punicagranatum	Punicaceae	<i>Madhura, kashaya, Amla</i>	<i>Laghu, snigdha</i>	<i>Anushna</i>	<i>Madhur Amla</i>
6.	<i>Parushaka</i>	Grewiaasiatica	Tiliaceae	<i>Madhura, amla, kashaya</i>	<i>Laghu</i>	<i>Sheeta</i>	<i>Amlamad hura</i>
7.	<i>Amalaki</i>	Emblicaofficinalis	Euphorbiaceae	<i>Pancharasa Amla</i>	<i>Laghu, ruksha, sheeta</i>	<i>Sheeta</i>	<i>Madhura</i>

1. KHARJURA:-

Chemical composition:-

➤ The crude extract of leaf contains alkaloids, flavonoids and phenols. Fruit contains proteins 1.2%, carbohydrate 33.8%, fibres 3.7%, minerals 1.7%, calcium 0.22% and phosphorus 0.38%, *nira* contains vitamins B and C. it is a rich source of vitamin B

➤ To know the pharmacological actions of this formulation on the level of *doshas* and *agni*.

CRITICAL REVIEW OF THE INGREDIENTS OF KHARJURADI MANTH:

➤ Details of ingredients of *kharjuradimanth* shown below in table no 2.

complex. *pindakharjura* contains higher nutritive value.

Main actions:-

➤ *Nadibalya-mastishkashamaka, vedanasthapana, dahaprasadana, raktapittashamaka, hridaya, jvaraghna, mutrala, vrishya, shramahara, balyabrinhana, snehana, anulomana,*

stambhana, nadibalya-mastishkashamaka, vedanasthapana.

Rogahnata:-

➤ *Hridvikara, mada-murchha, madyobhutavikara, jvaradaha, kshaya-kshata-urakhshata.*

Action on tridosha-Vatapittashamaka

Therapeutic uses:-

➤ Fruits are used in various forms and modes in cough, hiccough, asthma, spermatorrhoea, dysuria, fever, burning sensation, thirst, faints, alcoholism, sciatica, backache, vomiting and diarrhea¹².

Pharmacological studies:

➤ The phoenix sylvestris leaf crude and methanol purified extract has significant antioxidant and antibacterial activity and remarkable cell viability with significant ROS generation¹³.

➤ The mesocarp tissue extract of sugar date palm (phoenix sylvestris), suggested that the metabolites present in the fruit mesocarp shown the potential antioxidant activity and properties to inhibit the enzymes α -amylase and α -glucosidase¹⁴.

2. DRAKSHA:-

Chemical composition:

➤ Fruits contain flavonoids (quercetin) anthocyanins, proanthocyanins, organic acids, tannin, mineral salts and vitamins, fruit skin is rich in resveratrol which is a derivative of stilben. Fruit juice

contains malic, tartaric and racemic acid along with 0.05% of ash.

Main action-

➤ Ripe fruit is laxative, purgative, fattening, diuretic aphrodisiac, appetizer, and cures thirst, asthma, *vata and vatarakta, snehopaga, trishnanigrahana, dahaprashamana, santarpana, anulomana, ruchikara, hridayabalaprada, raktaprasadana, raktapittashamaka, phuphusabalada, sandhankarmak, vrishya, jivaniya, balya, brinhana, medhya, soumanasyajanana, mashtishkabalya, madahara, shoshahara.*

Rogahnata:

➤ *Madatyaya, kamala, pandu, mastiskadourbalya, murchha, hriddourbalya, krishta, trishna, daha, sammoha, santapa, vibandha, udavarta.*

Action on tridosha- Vatapittashamaka

Therapeutic uses:

➤ The ripe fruits are diuretic, laxative, aphrodisiac, and appetizer. It is good for eyes and throat. It cures thirst, fever, asthma, gout, jaundice, bad effects of drinking or alcoholism and blood diseases.

➤ The fruits are stomachic, digestive, expectorant, blood purifier and blood enricher they are good for lungs, heart, liver and kidney and they are prescribed for general debility. The seeds are applied to diminish inflammation¹⁵.

Pharmacological studies:

➤ *Vitis vinifera* has antioxidant activity, hepatoprotective effects, anticarcinogenic effects, cardioprotective effects, antimicrobial and antiviral effects, and antidiabetic effects¹⁶.

3. VRIKSHAMLA:

Chemical composition:

➤ *Garcinia* consists of bioactive molecules including xanthenes, flavonoids, Benzophenones, lactones and phenolic acids. Seeds of the fruit yield a valuable edible fat known as kokam butter. Fruits acid contains malic acid, tartaric acid and citric acid.

Main actions:

➤ These include its usefulness as an infusion, in skin rashes caused by allergies, to relieve sunstroke, remedy for dysentery, an appetiser, liver tonic, to allay thirst and as a cardio tonic. it *ishridya, Rochana, Yakrriduttejaka, Vatanulomana, Jwaraghna, Sandhaniya, Tvagadoshahara.*

Rogagnata:

➤ *Aruchiagnimandhya, udarashula, gulma, hridroga.*

Action on tridosh-

➤ *Kaphavata shamaka*

Therapeutic uses:

➤ This is antiscorbutic, astringent, cardiogenic, stomachic, and carminative, cholagogue, cooling, demulcent and emollient. it is used in anorexia, colic dyspepsia, heart disease.

➤ The fruits are antihelminthic and cardio tonic. They are useful in pains and heart complaints¹⁷.

Pharmacological studies:

➤ *Garcinia indica choisy* has antioxidant activity, antimicrobial, antiulcer and hepato protective activity¹⁸.

➤ *Garcinia indica* fruit has antidepressant and anxiolytic effects¹⁹.

4. AMLIKA:

Chemical composition:

➤ Fruit contains invert sugar, citric acid, oleic acid, linoleic acid, volatile oils (geraniol, limonene), pipercolic acid, lupeol, orientin, vitamin B3, vitamin C, vitexin, phenylalanine, leucine, potassium, Campesterol, β -amyrin, β -sitosterol, Tannins, saponins, glycosides. tartaric acid 5%, citric acid 4%, malic acid, acetic acid, potassium tartarate 8%, sugar 25-40% gum and pectin.

➤ Seeds contain pectin, fat, carbohydrate 63-72%, albuminoids and fibers and alkalies substances consisting phosphorus and nitrogen.

➤ Pods or fruit pulp also contain some oxalic acid. Seeds coat contain a fixed oil, tannic acid and some insoluble substances.

Main actions-

➤ Its usefulness in jaundice, in liver, complains, as an acid refrigerant, as a gentle laxative, in yellow fever, as a blood tonic, and as a skin cleanser. *Yakriduttejaka,*

rochana –deepana, hridya, raktavataprashamana, shothahara, vedanasthapana, ropana, arshoghna.

Rogagnata:

➤ *Hridvikara, raktavata, agnimandhya, vamana, aruchi, vatavyadhi, arochaka-bhaktadvesha, gulma-arsa-udarashula, vibandha, sothavedanayuktavikara, abhighata.*

Action on tridosha-

➤ *Apakvaphala-vatashamaka, kaphapittavardhak, raktapittakaraka.*

➤ *Pakvaphala-pitta shamaka, kaphavatashamaka*

Therapeutic uses:

➤ Ripe fruits drink is useful as cardiac tonic, loss of appetite, stomachic, indigestion and in vomiting, excessive hot urinary complaints (burning and scanty urination or micturition) and also checks complications (excessive thirst, burning sensation, nausea and vomiting etc.) during febrile condition²⁰.

Pharmacological studies:

➤ *Tamarindus indica* has antioxidant activity, antimicrobial, anthelmintic, antidiabetic, anti-inflammatory, analgesic, Hypolipidemic and weight reducing Activity, anivenom immunomodulatory, antiemetic, antipyretic antihistaminic and hepatoprotective activity²¹.

5. DADIMA:

Chemical composition:

➤ It contains numerous valuable ingredients such as flavonoids, ellagitannin, punicalagin, ellagic acid, vitamins and minerals. The principal constituents including punicalagins and ellagitannin are responsible for immeasurable health benefits due to its strong antioxidant activity. Additionally, constituents of pomegranate show health promoting effect through the modulation of physiological and biochemical pathways. Pomegranate peel is a rich source of tannins, flavonoids and other phenolic compounds. Its juice also contains various constituents such as polyphenols, tannins, anthocyanins, including vitamin C, vitamin E, and lipoic acid and punicalagin.

Main actions:

➤ Hepatoprotective effect, antioxidant activity, anti-inflammatory and analgesic effect, anti-diabetic activity, anti-microbial activity, anti-bacterial activity, neuro-protective effect, nephro-protective effect, anti-tumor activity, *rochana, ruchivikara, dipana, grahi, hridya, sonitsthapana, medhyamashtishkya, balya, sothahara, ropana.*

Rogagnata:

➤ *Hridroga, raktavikara, mashtishkadourbalya, mashtishkavikara, aruchi, agnimandhya, atisara, pravahika, urdhvaroga, sukradourbalya, jvarapathya*

(*phalabeej*) *dourbalya(phala)*,
mukhakanthavikara(phalatwak).

Action on tridosha-

➤ *Tridoshaghna* (*madhuraphala*)
kinchitpittakara (*madhuramlaphala*),
kaphavatashamaka-pittala (*amlaphala*).

Therapeutic uses:

➤ It is anthelmintic, astringent, cardiac and cooling, diuretic, expectorant, refrigerant and supportive. It is useful in brain affections, cold and cough, diarrhea, dysentery, dropsy and heart tonic. The drug increases seminal flow.

➤ The ripe fruit is sweet, tonic, laxative, diuretic, enrich the blood, they are used in sore throat, sore eyes, brain diseases, spleen complaints, chest troubles.

➤ Fruits are useful in the ailment of brain and allied (mental) complaints. They are useful in anemia, general debility, fever and allied complaints²².

Pharmacological studies:

➤ Pomegranate has hepatoprotective effect, antioxidant activity, anti-inflammatory and analgesic effect, anti-diabetic activity, anti-microbial activity, anti-bacterial activity, neuro-protective effect, nephro-protective effect, anti-tumor activity²³.

➤ *Punica granatum* juice has hepatic oxidative stress reducing activity²⁴.

6. PARUSHAKA:

Chemical composition:

➤ Fruits are a rich source of nutrients such as proteins, amino acids, vitamins, and vitamins and contains various bioactive compounds like anthocyanins, tannins, phenolics and flavonoids. The seeds of parushaka fruits contain oil.

➤ Bark contains mucilaginous substance which is reported to contain various chemical substances. The presence of triterpenes viz. lupeol, lupenone, fridelin and botulin in the stem bark of *Grewia asiatica* after successive extraction with light petrol. Fruits contain acid as citric acid 2.8%, sugar (sucrose) 11.7% and vitamin C-trace.

Main actions:

➤ Fruit possess anticancer, antioxidant, radioprotective, and antihyperglycemic properties.

➤ *rochana-hridya*, *madahara*,
Brimhana, *dahaprashamana*,
deepanapachana,
shulaprashamana, *jwaraghna*,
shukrajanana.

Rogagnata:

➤ *Madatyaya*, *bhrama*, *daurbalya*,
hridaroga, *hriddaurbalya*, *paitikjawara*,
daha, *kshaya*, *shula*, *shukradosha*, *shopha*,
aruchi, *agnimandhya*.

Action on tridosha-

➤ *Pittashamana*, *vatakaphahara*

Therapeutic uses:

➤ The ripe fruit is useful in thirst, burning sensation, inflammation, heart and blood disorders and fever, strengthen the chest and the heart and useful in diarrhea.

➤ In alcoholism caused by pitta dosha, saturating soups and drinks may be prepared of the juice of drug *parushak* along with *amalaki* and *kharjura*²⁵.

Pharmacological studies:

➤ *Grewia asiatica* has antioxidant activity, radioprotective activity, antimicrobial, anticancer activity, antihyperlipidemic activity, analgesic and antipyretic activities²⁶.

7. AMALAKI:

Chemical composition:

➤ *Embllica officinalis* reported to possess bioactive compounds like tannins, flavonoids, saponins, terpenoids, ascorbic acids and fruit is rich source of vitamin C. Seeds contain fixed oil, phosphatides and an essential oil. Fruit, leaves and bark are rich in tannin. Fruits contain gallic acid, tannic acid, resinous matter, glucose, albumin, cellulose and minerals specially calcium, other than good content of vitamin C and other substances.

Main action:

➤ *medhya-nadi-indriya-mashtishkabalaprada*, *rasayanavayasthapana*, *rochana*, *deepana*, *yakriduttejaka-plihahita*, *shothahara*, *hridya*, *shonitasthapana*, *anulomana*,

raktastambhaka, *raktaprasadana*, *vrishya*, *jwaraghna*, *dahaprashamana*, *shukrakara*, *shramahara*, *shulaprashamana*, *balavivardhana*, *jivaniya*.

Rogagnata:

➤ *Mashtishkadaurbalya*, *nadidaurbalya*, *indriyadaurbalya*, *yakrita-plihavikarapandu*, *hridaroga*, *raktavikara*, *aruchi*, *kasa-shwasa-yaksham*, *daurbalya*, *kshaya*, *shoshadrashtimandhya*, *udararoga*, *vibandha*, *aruchi*, *agnimandhya*, *amlapitta*, *gulma*.

Action on tridosha

➤ *Tridosahara*, *pittashamaka*

Therapeutic uses:

➤ It is useful as an astringent, cardiac tonic, diuretic, laxative, liver tonic, refrigerant, stomachic, restorative, general tonic, aphrodisiac, antipyretic, anti-dermatosis, hair-tonic nervine-brain tonic, anti-inflammatory and digestive medicine. It is used in anemia, hyperacidity, peptic ulcer, dyspepsia, anorexia, diarrhea, dysentery, dyspepsia, eyes inflammation, jaundice, weakness of memory, nervine debility, oedema, liver complaints, cough, asthma, and pthisis. The paste of dried fruit is applied in diseases of head, hair and brain and skin complaints²⁷.

Pharmacological studies:

➤ *emblica officinalis* hashepato-protective activity, antimicrobial, antioxidant, and free radical scavenging

activity, anti-inflammatory, hepatoprotective, radioprotective activity, hypolipidemic activity, antidepressant activity, immunomodulatory, hypolipidemic, HIV-reverse transcriptase inhibitory activity and many other activities. This medicinal plant is also reported to have anticancer, anti HIV-reverse transcriptase, antidiabetic, antidepressant, antiulcerogenic, wound healing activities²⁸.

➤ *Emblica officinalis* has alcohol induced hepatic injury protective effect²⁹.

DISCUSSION

In Ayurveda terms addiction is *vata-pitta dominant* and *jathragni daurbalya avastha* and if we see the *kharjuradimanth* ingredients, most of the ingredients having *vata-pittashamaka* property and all of the ingredients having *amla rasa pradhanta* except *kharjura*. As we know the *amla rasa* it is *agnideepana* in nature. So it can be said that the most of the ingredients of *kharjuradimanth* have *madyodbhutavikarashamaka* properties as *vata-pittashamaka*, *agnideepana*, *yakriduttejaka*, *hridya*, *balya*, *aruchinashaka*, *nadibalya*, *mastishkashamaka*, *medhya*, *soumanasyajanana*, *vedanasthapana* properties. So on the basis of vivid

description of all the seven drugs of *kharjuradi manth*, which is a most common and famous preparation for the treatment of alcoholism (acute and chronic alcohol addiction and withdrawal). It can be said that *kharjura* itself is a rich source of vitamin B₁ (thiamin) that is a major nutrient which deficiency occurs at the time of withdrawal of alcohol consumption. Thiamin deficiency may cause degeneration of mammary bodies of hippocampal area of the brain. It can lead to *Wernicke's encephalopathy*. But as we know that *kharjura* is thiamin rich so the need of thiamine at the time of withdrawal is fulfilled and it is easily absorbed and reached to the target organ with the help of quercetin i.e. a potential bioavailability inducing agent, which is present in all the citric fruits present in *kharjuradimanth*. It is also having hepatoprotective, cardioprotective, neuroprotective, appetizer, antimicrobial and antioxidant properties. At the same time it is also having withdrawal suppressing properties like antidepressant, antiemetic, analgesic, anti-inflammatory, antipyretic, immunomodulatory, neuroprotective and cardioprotective effects.

CONCLUSION

On the basis of above discussion it can be concluded that as the *jathragni* is

diminished in the condition of alcoholism so one should avoid over medication and pseudo medication while treating a patient of alcoholism. So in the management of these patients, proper application of herbal formulation is very much effective. In this context the above mentioned *kharjuradimanth* has been reviewed to understand its efficacy and pharmacological actions on the basis of so many different research works conducted all over the country on different diseases and on different parameters as described above. And after that it can be said that *kharjuradimanth* is useful in alcoholism (acute and chronic alcohol addiction and withdrawal). However further work can be continued on different parameters.

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