



A REVIEW OF AYURVEDIC TREATMENT OF INFECTIOUS DISEASES

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Abstract

Ayurveda is herbal treatment that is practiced in various parts of the world from centuries ago. It is derived from the Sanskrit 'ayu' means life and 'veda' means knowledge. Infectious diseases are spreading very speedily in all over the world. To catch all organisms all the time (either they are recently evolved or already present) and to treat them is not possible. Therefore prevention is right way against these diseases. Traditional health care system like ayurveda is right choice to treat infectious diseases. In traditional method of curing infectious diseases like Chickenpox, Malaria, Measles, mumps, jaundice and AIDS herbal preparations and plant and leaves extract ,paste of leaves of Neem and Turmeric ,Ginger, Garlic and other medicinal plant are used. This treatment is very helpful in developing countries where no or very less sources are present. This treatment is not more expensive and peoples of backward area avail it easily.

Key Words: Infectious Diseases, Ayurveda, Herbal Medicine, Leaves extract and Medicinal Plants

Introduction:

Ayurveda is medical treatment that is practiced in various parts of the world from centuries ago. It is derived from the Sanskrit 'ayu' means life and 'veda' means knowledge. (Tillu G *et al*, 2015). Ayurveda is a traditional treatment of diseases by using natural plants and plants products and it has no side effects rather than chemical drugs. Infectious diseases are spreading very speedily in all over the world. In Northern areas of Pakistan 70 to 80 % people still use Ayurvedic treatment. It is estimated that 35000 to 70,000 plant species world widely used for medicinal purposes. Due to large number of side effects of synthetic medicine people are more interested in Ayurvedic cure. (Chauhan A *et al*, 2015). One third of adult Americans use herbal medicine each year 64 % population of the world rely on these herbal medicine. (O. I Faleyimu *et al*, 2010). Ayurvedic treatment firstly practiced in India and then gradually spread throughout the world like Tibet, China, Bangladesh and Sri Lanka. Ayurvedic medicine are used to develop immunity against infectious disease.

Therefore prevention is right way against these diseases. Traditional health care system like ayurveda is right choice to treat infectious diseases. (Bhinde S. *et al*, .2013). Ayurveda System is used for the treatment of many infectious diseases such as Mumps, measles, Rabbits, Malaria, Psoriasis and other external and internal diseases related to human body and other animals etc. (Bhinde S *et al*, 2013). In traditional method of curing infectious diseases we use herbal preparations and plant extracts, one of the herbal preparation is churna.

Ayurvedic Approach of Management of Infective Diseases

Chicken pox: It is a primary infection caused by Varicella Zoster Virus (VZV), which consists of double stranded DNA. (Salameh S *et al*, 2012). This disease is mostly occur in children with low immunity and in healthy children this occur with mild symptoms like a vesicular rash and fever. This disease is confused with smallpox and measles due to the similarity in symptoms. Fever, headache, malaise and weakness are primary symptoms of this disease and after these itchy rash fluid filled blisters appear gradually. Initially rashes appear on scalp, face and trunk. Chicken pox occurs throughout the year but frequently occurs in winter and spring. (Anand T *et al*, 2014). In the form of droplets this virus spread from nasopharynx and then these droplets become the cause of spreading of (VZV) in the community. (Ghani E *et al*, 2016). The people which are effected by VZV have more chance of HIV. (Kamat V *et al*, 2017). This disease occur worldwide

but there is some difference in temperate and tropical countries like US and UK 90 percent people get this disease in early age and in tropical countries this infection occur in older age due to late occurrence this is occur in pregnant females which is more dangerous. It is highly contagious disease and its attack rate is 62-100. (Kadri SM *et al*, 2017). When researchers work on varicella they concluded that 2262 people died before the development of vaccine during 25 years in united state.

Percentage of People died from varicella due to pneumonia (27.6%) central nervous system complications (21.1%) and due to hemorrhagic conditions (4.8%).(Meyer A *et al*, 2000).

After primary infection herpes zoster virus remain dormant in dorsal root of ganglion and then reactive due to stress low immunity cause another disease called **Herpes Zoster or Shingles**. It is also a viral infection and caused by the same virus responsible for chicken pox. There are many types of this disease genital herpes, cutaneous herpes and conjunctiva. In developing countries many people die daily from curable disease due to unavailability of sources, knowledge and vast distances. It is very important to cure this disease because it is very difficult to remove this virus from ganglion. (Jadhav P *et al*, 2012). In this condition herbal medicine are helpful because these are cheaper than orthodox medicine. These are easily available to cure the diseases in developing countries.

Treatment:

Azadirachta indica or Neem is used in the treatment of chicken pox. Its leaves inform of paste is apply on infected area and are used in bathing water. But neem should not be used orally by pregnant woman it would be harmful.(Krishnaiah D *et al*, 2009). Due to its antiviral affect Neem is used to cure this disease.(Girish K *et al*, 2008).

Garlic (*Allium sativum*) is very effective in the treatment of chicken pox because it contain chemical compound called ajoene it stopes spreading of the virus .It also effective on itching and burning sensation. Turmeric oil and its powder is an antioxidant and used in the treatment of both chicken pox and herpes zoster .turmeric paste is apply on the infected area. Aloe vera gel is also helpful in avoiding burning sensation and is apply on the rashes and blisters of Herpes zoster. *Ocimum sanctum* is a medicinal plant and commonly called Niazbo it is anti stresser and lessen the stress because herpes zoster is occur due to the stress.(Dan M M ,2018). *Lawsonia inermes* is a medicinal plant and commonly called Hena and Hina and is also used dye the hand

of bridal .Cook the leaves and drink.Lemon Balm belong to mint family the extract of the leaves of this plant is mix with creame to form a paste and is apply on the blisters of Herpes Simplex. (Gaby R A, 2006).*Manihot esculenta*,commonly called Cassava is a medicinal shrub leaves are used by cooking and then drink(Faleyimu O. I *et al*, 2010). Euclyptus leaves extract and its oil is used in the treatment of chickenpox. (Dan M. M., 2018).

Malaria: Large population of world is continuously using different herbal plants for the treatment of various infectious diseases like malaria. (Sandhya B. *et al*, 2006). Malaria is parasitic protozoal disease that is caused by parasites of Plasmodium genus. (Gupta A. *et al*, 2004). Malaria is one of the global death causing disease mostly in the area with less sources. In India annually are 2 million malaria cases have been seen. In 2015, according to the world health organization approximately 438,000 people died due to malaria. (Ghate U.*et al*, 2012).Once again, control of malaria is in top infectious diseases for international health policy makers, as affirmation by the World Health Organization's 'Roll Back Malaria'. (Brugha R. *et al*, 1999). Malaria is health issue of tropical, subtropical world and socio economically background world. Almost 80 percent global population, still depend on Ayurvedic treatment of infectious diseases. (Gupta A. *et al*, 2004). In most parts of India, malaria is major health problem. For thousands of years, traditional medicines are used to treat malaria. Ayurvedic medicines play role of life saver in those poor areas where majority of people are unable to afford and access effective antimalarial drugs. Their life is dependent on traditional knowledge system (TKS) of ayurvedic plants. For various diseases and most widely malaria, native people mostly use a variety of herbal medicines. Such herbal plants have potential to cure some incurable diseases. Malaria had been found in people from the origin of life. As man begins to civilize, he started using herbal plants as cure of malaria. Malaria spread in Europe, India, China and Indonesia from Africa by shipping routes. From 160 families over 1200 plant species are used for treatment of malaria. (Willcox M. *et al*, 2004). In Madhya Pradesh, Andhra Pradesh, Maharashtra, Rajasthan, Gujraat, West Bengal and Karnataka, 92% malaria cases and 97% of deaths due to malaria are reported. In south Asian Nations, around 2.5 million malaria cases are reported annually. Its general symptoms are high fever with chill, intermittent fever, headache as well as trembling as major symptom. Around 500 BC, the father of medicine said that mosquitoes are produced in sluggish water. Moreover, he narrated that people who drink stagnant water have hot stomachs and their collarbones, faces and shoulders are thin. (Gupta A. *et al*, 2014). Antimalarial herbs that are

mostly useful are Caper-bush, Teclea nobilis, Governor plum, Shrub verbenas, Curry bush, Sibipiruna, Bankanas, Viola serpens Var., Bitter Oleander, Grains of paradise, Ginseng, Toothache Plant, Alstonia, Cheesewood, Damsisa, Um Galagel, El-Handal, Kamun-Aswad, El-Hargel, Sunkurtae, Feaxxo, Bissano, Chugughee etc. (Gupta A. *et al*, 2014).

Plant species that are used as antimalarial medicines are given below:

Family	Species
Annonaceae	Annona muricata
Anacardiaceae	Mangifera indica
Crassulaceae	Kalanchoe pinnata Lam
Cucurbitaceae	Momordica charantia
Euphorbiaceae	Jatropha curcas, Ricinus communis
Fabaceae	Senna occidentalis Link, Senna tora
Malvaceae	Sida rhombifolia
Menispermaceae	Cissampelos pareira
Zingiberaceae	Zingiber officinale Roscoe

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G. *et al*, 2004).

Rabies: Natural products of herbal plants are safer than antibiotics. Therefore, majority of people in the world prefer mostly the use of Ayurvedic plants for the treatment of infectious diseases like rabies. (Panda A.K. *et al*, 2013). *Alarka* (Rabies) is a disease of central nervous system that is highly fetal, and acute. *Alarka* is an infectious disease that is found in worm blooded animals such as dogs, wolves and Jackal etc. It is zoometric disease. It is caused by Lyssavirus type 1. (Savita B. *et al*, 2014). It is estimated that 10,000 people per annum losses their life because of rabies in Ethopia in which more cases of children are seen under the age of 14 years. Vaccines of rabies are inaccessible and costly, therefore people prefer herbal treatment of rabies that is easily accessible and affordable. (Admasu P. *et al*, 2014). Nearly, 35000 people die from biting of rabid dogs each year world-widely. Rabies transmission rate depend on population density; rabies transmission rate can be break off by dropping density of population from certain level. (Wandeler I.A. *et al*, 1993). This disease is transmitted to humans by rabid animals through their licks and bites. It is the cause of more than 95% human death in Asia and Africa but it is also found in all continents exception of Antarctica. In ayurvedic language *Alarka*

is defined as visha. (Savita B. *et al*, 2014).Initial symptoms are mild but they become serious. Starting symptoms lasts for 2 to 10 days before the development of severe symptoms. Initial symptoms are fever, feeling unwell, feeling anxiety, headache and feeling sensation of pain or tingling at infectious site in some people. Advanced symptoms are aggressive behavior, hallucination, agitation, producing lots of saliva. When affected person get started to perform activities of an animal which bite him then he will become incurable. When affected person see the image of an animal from which he got bitten, in water or mirror then it becomes incurable. Jalasantrasa (Hydrophobia)-When affected person becomes frightened by touch, looking towards water or by listening sound of water such condition is called as Jalasantrasa (Hydrophobia), it is incurable (Savita B. *et al*, 2014).

By a survey a detail of animal biting is given in table below:

Biting Animals(%)		Urban	Rural	Total
1	Dogs	91.9	91.4	91.5
	• (%Pet)	40.0	36.4	37.1
	• (%Stray)	60.0	63.6	62.9
2	Cats	4.9	4.7	4.7
3	Monkey	2.7	2.1	2.2
4	Pig	0	0.5	0.4
5	Rat	0	0.7	0.5
6	Cow	0	0.1	0.1
Wild				
1	Jackal	0	0.3	0.2
2	Bear	0	0.1	0.1
3	Other/not stated	0.5	0.1	0.3
Fat of Animals (%)				
1	Dogs			
	• Alive	67.1	59.3	60.8

	• Died	5.3	7.9	7.4
	• Killed	5.9	13.0	11.6
	• Unknown	21.7	19.8	20.2
2	Cats			
	• Alive	66.7	67.6	67.4
	• Died	0	5.9	4.7
	• Killed	0	8.8	7.0

Table: Detail of animal biting (Sudershan.K.M. *et al*, 2006)

Treatment: 1) If poison is aggravated in a person then he has no chance of recovery, hence poison should be aggravated to perform before reaching that stage of aggravation. 2) Removal of blood containing poison from site of bite then burnt the affected site by pouring hot ghee on it. After that, apply Agada (Antipoisonous medicine) on that area. 3) Person having rabies disease should drink Puran ghrita and purgative drugs along with milky sap of arka (*Calotropis procera*). 4) To recover the local symptoms of dog bite, apply paste of tila (*Sesamum indicum*), guggula (*Commifera mukul*), durva (*Cynodon dactylon*), dadima (*Punica granatum*) and guda as a worm poultice, is best in repeated manner. (Savita B. *et al*, 2014).

Jaundice: The word jaundice derived from jaune means yellow. In this situation whites of the eyes, skin and colorless body fluid become yellow and in the blood stream bilirubin aggregate occur. (Bhuwal R. *et al*, 2011) Jaundice itself not a disease instead its symptoms show in other diseases. Yellowish skin and white of the eyes turned to yellow depend upon bilirubin quantity. If jaundice appear in body then it results in many diseases that damage the liver, such diseases are Hepatitis A, Hepatitis B, Hepatitis C, Hepatitis D, Hepatitis E, liver cirrhosis, liver cancer, hemolytic anemia and malaria.(Abbasi M.A. *et al*, 2009) Bilirubin become yellow when its amount slightly increase. When its amount too much high then its color change to brown. (Amiri S.M. *et al*, 2014). Cause of Jaundice in patient with injury is that, bilirubin level increase, the reason of this is that, the rupture of additional blood and transfer due to liver disability. (Hung N.L. *et al*, 2015) Bilirubin might be harmful to the central nervous system. (Haq I. *et al*, 2017) Jaundice is sign of situations that are not dangerous and those that are fatal for the body. (Taylor A. *et al*, 2012). Jaundice also cause other diseases such as diabetes and loss of appetite. (Shankar R. *et al*, 2016). In humans it is a common liver disease occur due to virus that is Hepatitis A to

Hepatitis G and Non A to Non G Hepatitis. When liver get more bilirubin from blood then it cause jaundice. In this disorder death of red blood cells take place quickly and in the blood big amount of bilirubin secrete, it cause liver disorder. The movement of bile and bilirubin from liver less penetrate in intestine because bile ducts blocks. Jaundice also cause other diseases such as diabetes and loss of appetite. Addiction of alcohol and take spoil food are major reason of this disease. (Shankar R. *et al*, 2016).

Treatment: There is no exclusive control but herbal plants play an important role in treatment of jaundice. The most influential families are astraceae have three species followed by euphorbiaceae, moraceae, anacardiaceae and poaceae, each have two species.

Medication for jaundice have two ways for preparation, it make from single plant or from more than one plant. In such medication water act as a medium and take with sugar and water. This preparation have six divisions, decoction 31%, juice 23%, extract 20%, powder 20%, fresh part 6% and paste 3%, all of which taken orally. (Abassi M.A *et al*, 2009). *Capsicum annum* in family solanaceae that have common name mircha without seed 10-15 gms of this fruit slash, for 3-4 hours put it in 100-150 ml. water then fruit is removed from water and water is used but not orally. *Cissampelos pareira* common name patha, for all night patha root put in water and this juice taken orally. *Coriandrum sativum* common name is dhaniya, in case of jaundice dhaniya leaf and fruits are taken orally. *Curcuma longa* L. Synthase. *Curcuma domestica* volecton common name is Turmeric, made juice by pounded 40-50 gms rhizome this juice is mixed with *Piper longum* L. and for 20-25 days daily in case of jaundice. *Embllica officinalis* Gaertn, Common name is amlaki, in cow milk 100150 gm trunk of periphery are boiled and made decoction. 100 gm of this decoction is taken one time in a day for 20 days for jaundice. *Psidium guajava* L. Common name is Guava, root of *Sida cordifolia*, 1/4 liter goat milk and juice from madhurika or from Guava, mix all these carefully. This mixture taken orally. It is best that patient taken three doses that result in vanish the symptoms that is removal of yellowness from the eyes and clear urine of the patient. *Saccharum officinarum* L. Suger cane juice is best for cure of jaundice. (Shankar R *et al*, 2016). *Cucumis sativus* common, name is Cucumber in family Cucurbitaceae, preserved fruit not used but fresh fruitis cut into small pieces. Taken orally three times in a day for a month. *Raphanus sativus*, common name is radish, root part is used for this purpose root part is taken these roots must be fresh. Cut these roots length wise and hang it for a

whole night and exposed it at open place. For a month these pieces of roots taken orally in the morning.

Berberis lycium, common name is Royle, leaves part used of this plant. In water fresh leaves are boiled rigorously, taken this decoction for three time in a day for 2 or 3 weeks. *Phyllanthus emblica*, common name is amla, seeds of *P.granatum* and dried fruit of *P.emblica* crushed and mix with sugar. This made a powder, then in one cup of water add three teaspoons of powder. Given to the patient for three times in day for three weeks. *Prunas domestica*, common name is Plum, dried fruit of *T.indica* and *P.domestica* are dip in water over a night. Then make extract. For 2-3 weeks taken one cup of this extract. *Tamarindus indica*, common name is imli, fruits and roots part of this plant is used, fruit of *P.domestica* and roots and fruits of *T.indica* are dip in water over a night. Taken one cup of this extract for 2-3 weeks. (Abassi M. *et al*, 2009). Death rate in Europe annually is 170,000 due to liver cirrhosis. In UK in the list of common cause of death due to liver diseases is on 5th number and in United states has 12th number. (Patel V. M. *et al*, 2015).

Psoriasis: Psoriasis is a skin related disease, in this case skin become red, itchy and scaly patches are formed. Millions of people are affected by this disease throughout the world. Worldwidely, 125 people are affected by psoriasis. (Griffiths M. *et al*, 2017).

It occur when system of body which fight against pathogens not function properly means disordered immune system. It is more harmful for AIDS and cancer patients. Mostly such kind of patches are formed on knees, elbows, palms, scalp, soles of feet or lower back etc. Psoriasis are of many types which are categorized on the base of its intensiveness i.e plaque, guttate, erythodermic, pustular, inverse and psoriatic arthritis. There are different methods to cure psoriasis but due to the risk of side-effects of chemical drugs people prefer treatment through ayurvedic herbal products. It is cured by using or applying different types of oils, mostly tropical plants are used for the treatment. Psoralen coryliforia and *Coleus forskoli* sarsaparilla are the herbal medicines for the treatment of psoriasis. Type of psoriasis which is not more harmful mild plaque psoriasis, redness of skin is less apply olive oil which provide relief. By using regularly olive oil in different ways like in bathwater or by leaving oil for a night in the scalp reduce the dryness because it has antioxidant properties. Milk thistle is also used to strengthen the immune system by the production of bile from liver which help to cure the psoriasis. Thistle is widely

distributed herbaceous plant of daisy family. Cayenne is considered as best natural remedy for psoriasis because it contain a substance which is called capsaicin which help to provide relief form irritation. Aloe Vera is also very effective and it is also used for various skin purposes. It may be directly applied on affected area. After four week treatment researchers concluded that it has no side effect and psoriasis is reduced or cured in 25 out of 30 patients by applying aloe Vera cream. Andira araroba powder mixed with lemon juice or vinegar or with glycerin or starch paste used one or two time a day help to cure the psoriasis when applied continuously for eight days. Its pills are also available. It is also known as Goa or Bahia powder. (Shaikh G. *et al*, 2012).

Other herbal remedies are also used for its treatment like aromatherapy: different oils are mixed like lavender, bergamot and calendula are applied or gently massaged on the affected area provide benefit. Papaya is also helpful in psoriasis treatment. (Shaikh G. *et al*, 2012).

Conclusion: Infectious diseases are widely spread throughout the world. Large number of people are effected by these diseases. People use synthetic medicines which have many side effects to health. Therefore, ayurveda is best treatment for curing infectious diseases because it is less expensive and easily available to all parts of the world even in backward areas.

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