

## THE NATURAL HERB ON WATER PURIFICATION

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### ABSTRACT

Generally, from the unprotected sources such as open dug wells or small streams and ponds the water supply comes to the rural population. Requiring immediate attention for development and distributed over a large promotion of destroying bacteria techniques for rural areas. *Siddha* text book “*Noi Ili Neri*” indicated, ancient people allowed growing the *E.officinalis* near to natural water resources for purifying the water naturally. Keep the tender branches of *E.officinalis* in to the water source to make a likable flavor to the water. After the purification process of water turbidity, odor, colour, bacterial impurities, hardness and toxic elements were changed and fit to be used. *E.officinalis*, Family Euphorbiaceae, gooseberry in English. *E.officinalis* having valuable phytochemical and physicochemical properties. Scientific studies that proven reduces the hardness of water by having effective chemical constituents. These enhance the morbidity and mortality in *Anopheles stephensi*. And also contains Larvicidal, pupicidal, and ovicidal activities. In contaminated water resources chemical components of the plant inhibit the growth of *E. coli*. Pharmacological actions of *E.officinalis* are antimicrobial, analgesic and antipyretic, adaptogenic, hepato-protective, antioxidant, anti-inflammatory, antitumor and anti-ulcerogenic activities. Review was the stated to explore the intended result of *E.officinalis* in water purification in various sources. Aim of this study was to assess the degree to *E. officinalis* is successful in producing a desired result of natural herbs in water purification. *E.officinalis* was found most effective for natural water resource purification. Water purification by using nature can also help to produce the utilization of something for the peoples living areas.

**KEYWORDS:** *Emblica officinalis*, Anti- microbial, *Anopheles stephensi*, open dug well

## INTRODUCTION

In March 2012, WHO declare that at least 11% of the world's population (738 million people) is without the access to safe drinking water. Assurance of drinking water unlikely to cause danger is a powerful environmental determination of health <sup>(1)</sup>. All origins of drinking water are likely to be contaminated by microbes and toxic elements <sup>(2)</sup>. Generally, from the unprotected sources such as open dug wells or small streams and ponds the water supply comes to the rural population. Requiring immediate attention for development and distributed over a large promotion of destroying bacteria techniques for rural areas <sup>(3)</sup>. Literatures of *siddha* medicine also refer to various methods to purify drinking water <sup>(4)</sup>. *Siddha* text book of "Noi ilia neri" mentioned, ancient people allowed growing the *E.officinalis* near to natural water resources for purifying the water existing as part of nature. In their experience, they hoped fruit and root of *E.officinalis* were contain best water purifier action <sup>(4)</sup>. Water sources can be impure from the accumulation of vegetable matter or other causes. When they kept plant parts like tender branches in to the water source, it was made a likable flavor to the water. <sup>(5)</sup>. The wood of *E.officinalis* was used to clear small rain ponds in the Indian Peninsula <sup>(6)</sup>. Results of water purification process turbidity, odor, color, bacterial impurities, hardness and toxic elements will be changed. <sup>(7)</sup>. The level of quality methods of disinfection consists basic filtration of more than one sorts, and ultraviolet treatment is sometimes employed in special situations; but reliance is mainly placed on chemical treatment species such as chlorine, chlorine dioxide and ozone <sup>(8)</sup>.

Traditional practice are ritualistic practices with valid scientific reasons, hence cannot be simply ignored. Here the review is inquiring into the intended result of *E.officinalis* in water purification in various studies. Aim of this study was to assess the degree to *E.officinalis* is successful in producing a desired result of natural herbs in water purification.

## METHODOLOGY

Collected the data of *Emblicoefficinalis*. Find out the Properties of *Emblicoefficinalis* related to water purification. Data were analyzed.

## LITERATURE

### Profile of *Emblicoefficinalis*

Latin names: *Emblicoefficinalis* Gaertn, *Phylanthusemblica* Linn. *Phylanthuslaxifolius* <sup>(5)</sup>.

English: Gooseberry, Emblica Myrobalam

Family: Euphorbiaceae.

Morphological characters: Small to medium size tree, 1–8 m (3 ft. 3 in–26 ft. 3 in) in height. The branchlets aren't glabrous or finely pubescent, 10–20 cm (3.9–7.9 in) long, usually deciduous; the leaves are simple, subsessile and closely set along branchlets, light green, resembling pinnate leaves. The flowers are greenish-yellow. The fruit is nearly spherical, light greenish yellow, quite smooth and hard on appearance, with six vertical stripes or furrows. Ripening in autumn, the berries are harvested by hand after climbing to upper branches bearing the fruits.

#### **Growing season and type:**

Plant is found everywhere in India up to the height of 5000 feet, Fruits appear from October to April. Hybrid variety of Indian gooseberry has bigger fruits than the wild variety. Fresh fruits are light green and ripe fruits turn light brown in color<sup>(17)</sup>.

#### **Chemical Constituents**

The fruits of *Emblicae officinalis* are rich in tannins. The fruits have 28% of the total tannins distributed in the whole plant. The fruit contains two hydrolysable tannins Emblicanin A and B, which have antioxidant properties, one on hydrolysis gives gallic acid, ellagic acid and glucose wherein the other gives ellagic acid and glucose. The fruit also contains Phyllembin<sup>(18)</sup>. Others are apigenin, quercetin, chebulagic acid, corilagin, isostrictinin, chebulinic acid methyl gallate, and luteolin<sup>(9)</sup>.

#### **Scientific Validation**

The ether extract and 80 percent alcoholic extract of fruits acidified with hydrochloric acid, were found to have antibacterial activity. The other extract of acidified alcoholic extract showed the highest activity, inhibiting the growth of *M. pyogenes* var. *S. typhosa* and *S. paratyphi* at a concentration of 0.21 mg/ml and that of *M. pyogenes* var. *albus*; *S. schottmulleri* and *S. dysenteriae* at a concentration of 0.42 mg/ml<sup>(19)</sup>. Compounds present in fruits, including flavonoids, phenols, and steroids that together or independently result in morbidity and mortality in *A. stephensi*.<sup>(10)</sup> Phenolics, terpenoids and alkaloids operation at the current time in plants may together or separately provide to produce larvicidal and pupicidal activities against *Anopheles stephensi*. Effective in oviposition deterrence and ovicidal activities, Adult female *A. stephensi* avoided oviposition in *E. officinalis*-treated water, though some laid eggs, but these hatched in abnormal larvae. Tannins containing important character such as firmly fixed and potent antioxidants<sup>(11)</sup>. Tannins as chief element of a larger whole are astringent in nature and are used for treating gastro intestinal disorders<sup>(12)</sup>. Fruits of *E. officinalis* were associated with morbidity and mortality from progressive deterioration and loss of function in the organs or tissues<sup>(13)</sup>. Low incidences and mortality rates of cancer and heart disease<sup>(14), (15)</sup>. Fruits have considerable amounts of active components such as polyphenols, flavonoids, tannins, vitamins A, B, C and E, and

carotenoids. These components are considering potent scavengers of free radicals and reactive oxygen species <sup>(16)</sup>. The percentage removal of *E. coli* was found 41.03% by using extract respectively, at 30-minute optimum contact time. <sup>(3)</sup>. *E. officinalis* wood treatment was changing greater in size the level of calcium, chloride, Nitrate, and iron in contrast Sulphate and magnesium levels were fewer in size. In contaminated water density of total coliforms and fecal coliforms were high. Although *E. officinalis* wood treatment reduced the bacterial density through inhibition of bacterial growth. Chemical constituents of *E. officinalis* producing unfavorable medium to bacterial growth. It not achieving to kill as great bacteria for the permissible limit. And also *E. officinalis* wood treatment has reduced the hardness of water, the value of magnesium and Sulphate in drinking water. It also increased the amount of calcium and iron. <sup>(2)</sup>.

## DISCUSSION AND CONCLUSION

An ancestor had a greater way of transferring and recording existing inheritance. One among them is through documenting an inheritance through popular sayings for example focused herb *Emblica officinalis* was contain best water purifier action. Scientific studies that proven chemical constituents were reduced the hardness of water. That phytochemicals are doing somethings as morbidity and mortality in *Anopheles stephensi*. And also contains Larvicidal, pupicidal, and ovicidal activities. Where these natural herbs are easily available. Especially *Emblica officinalis* was found most effective for natural water resource purification. Water purification by using nature can also help to produce the utilization of something for the peoples living areas.

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