


**POMEGRANATE (*PUNICA GRANATUM*)-REVIEW ARTICLE**Anita Maurya<sup>1\*</sup>, Amrita Asthana<sup>1</sup>, Jayant kumar Maurya<sup>1</sup>, pooja maurya<sup>1</sup>, Preeti gupta<sup>2</sup> and Shweta srivastava<sup>3</sup>

1 Prasad institute of Technology, Department of pharmacy, Jaunpur.

2 K.N.I.M.T Sultanpur.

3 Rajarshi Rananjay singh College of Pharmacy, Amethi, Sultanpur.

<b>*For Correspondence:</b> Prasad institute of Technology, Department of pharmacy, Jaunpur.	<b>ABSTRACT</b> Pomegranate ( <i>Punica granatum</i> ) is most important plant belonging to family Lythraceae. A symbol of fecundity and divine femininity emerges, whose fruit rinds, bark and roots are used worldwide as taenicides, owing to alkaloids, and treatment of diarrhea and oral and genital lesions, owing to tannins and astringency. The seeds contain oil which contains not only the steroidal estrogen, estrone in the highest concentration found in any botanical species, but also a full range of non-steroidal phytoestrogens including the comesten, coumestrol and the isoflavones, genistein and daidzein. Extracts of the rinds have been shown to be bactericidal, antiviral and antitumor and use of pomegranates in the treatment of Acquired Immune Deficiency Syndrome (AIDS) owing to their antioxidant properties and botanical uniqueness. This present study is designed to evaluate the Phytochemical and pharmacological profile of different extract of <i>Punica granatum</i> . <b>KEY WORDS:</b> Pomegranate, phytoestrogens, cultivation, pharmacological profile.
<b>Received: 10.01.2018</b> <b>Accepted: 22.06.2018</b>	
<b>Access this article online</b>	
<b>Website:</b> <a href="http://www.drugresearch.in">www.drugresearch.in</a>	
<b>Quick Response Code:</b> 	

**INTRODUCTION**

Pomegranate is native plant of Northern Africa and the Caucasian. Most of the Mountains are widely distributed throughout the Southern United State region. The name Pomegranate comes from the Latin Pomumll meaning apple and granatus meaning full of seeds. The botanical name is derived from old French; Pomegrenate- Pomegranate apple. It belongs to family Lythraceae. The pomegranate is one of the oldest known edible fruits and used as a crude drug from the ancient time for curing the blood disorder. Its history dates to very ancient times. This fruit tree is one of the species mentioned in the Bible and the Koran and is often associated to fertility. It is native to Persia and perhaps some surrounding areas. It was cultivated in ancient Egypt and early in Greece and Italy. The fruit was very popular in Irak. In time it spread into Asia (Turkmenistan, Afghanistan, India, China, etc.), [1,2,3]. In ancient Egypt, the pomegranate received the name "Arhumani". The old Semitic denomination was "Rimmon" from which derived the Hebrew "Ramon" and the Arabic "Rumman" names. The Romans first called this species "malum punicum" (Punic apple or apple of Carthage) that evolved to " punicum granatum" and C. Von Linne, finally, gives the name *Punica granatum*. In the near east (Persia, Turkey, etc.), Central Asia (Afghanistan, etc.) and India, the fruit is commonly named "Anar"[1,2,4]. Pomegranate is considered suitable for growing in arid zones because it no need excess water for their growth and feverable for drought conditions. It is now widely cultivated in tropical and subtropical areas. It cans be counterred as regular plantations in Cyprus,

Egypt, Morocco, Spain, Tunisia and Turkey. Large quantity of scattered trees found on the borders, are reported in many Mediterranean countries where the fruit is very popular in local markets. It is cultivated in central Asia and to some extent in the USA (California), Russia, China and Japan for fruit production and is also developed as a plant for decoration in East Asia [5,6].

### SYSTEMIC BOTANICAL

Botanically, the pomegranate (*Punica granatum* L.) is belonging from the family of Punicaceae. The genus *Punica* includes mainly two species i.e. *P. protopunica* and *P. granatum*. *Punica protopunica* is endemic to the Socotra island (Yemen) and is the only relative of the cultivated pomegranate [2,7,8]. It is presumed that *P. protopunica* played a part in the origin of the cultivated pomegranate. But confirmed that the Socotran pomegranate not playing any role in the origin of the cultivated one [2]. most of the authors classified the ornamental dwarf pomegranate as a distinct species, *Punica nana* [9].

### SYNONYMS

Hindi : Anar,  
Sanskrit : Dadimah,  
English: Pomegranate,  
Marathi : Dalimba,  
Gujarati: Dalimba,  
Bengali : Dadim,  
Tamil :Madalai,  
Telgu : Danimma,  
Malayalam :Talimatatum,  
Pharsi : Anar tursa,  
Arabi :Roman Hamiz,  
German : Granatapfels.

### BOTANICAL CLASSIFICATION

Botanical name- *Punica granatum*  
Kingdom: Plantae (Angiosperms)  
Order: Myrtales  
Family: Lythraceae  
Genus: *Punica*  
Species: *P. granatum*  
Synonyms: *Punica florida* salisb  
*Punica grandiflora* hort. ex Steud.  
*Punica nana* L.  
*Punica spinosa* Lam.<sup>[10]</sup>

### MICROSCOPY

#### Tree

The pomegranate is a neat, rounded share or small tree that can grow to 20 or 30ft. But more typically to 12 to 16 ft in height. It is usually deciduous but in certain areas the leaves will persist on the tree. The trunk is covered by a red-brown bark which later becomes gray. The branches are stiff, angular and often spiny. There is a strong tendency to sucker from the base. Pomegranates trees having the long life. The vigor of a pomegranate declines after about 15 years.

#### Leaves

The pomegranate has glossy, leathery leaves that are narrow and lance-shaped.

#### Flowers

The attractive scarlet, white or variegated flowers are over an inch across and have 5 to 8 twisted petals and a red, fleshy, tubular calyx which persists on the fruit. The flowers may be solitary or grouped in twos and threes at the ends of the branches. The pomegranate is self-pollinated as well as cross-pollinated by insects. Crosspollination increases the fruit set. Wind pollination is insignificant.

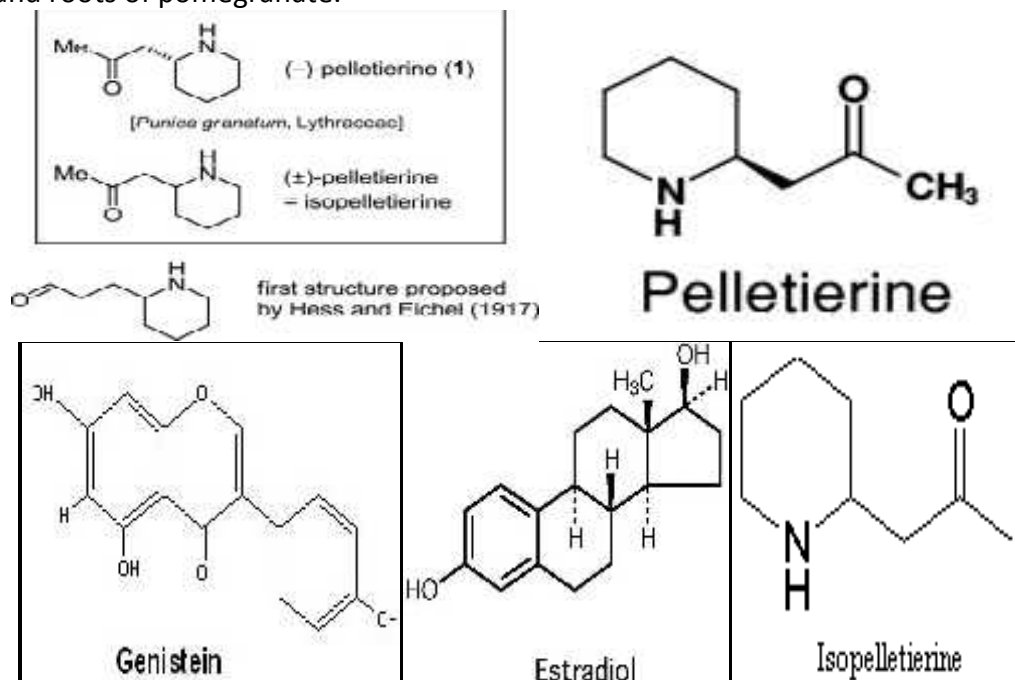
#### Fruit

The nearly round, 2-1/2 to 5 in. wide fruit is crowned at the base by the prominent calyx. The tough, outer membrane is typically yellow overlaid with light or deep pink or rich red in color. The interior is separated by membranous walls in chambers, with sacs filled with sweetly acid, juicy, red, pink or whitish pulp or aril. Every sac is filled with one angular, soft or hard seed. High temperatures are necessary for the fruiting and to get the best flavor and taste. The 15 Pomegranate may begin to bear

in 1 year after planting out, but 2-1/2 to 3 years is more common. In favorable climate the fruit should mature some 5 to 7 months after bloom.

## CHEMICAL CONSTITUENTS

Pomegranate consist of variety of flavonoids, which comprise approximately 0.2% to 1.0% of the fruit. Near about 30% of all anthocyanidins found within the peel of pomegranate. The genistein isoflavones, genistin, diadzein, and diadzin as well as the metabolic derivative of estradiol, may be isolated from the seeds. Alkaloids including isopelletierine, pseudopelletierine, and N-methylisopelletierine, Anthocyanidins Pelargonidin, ellagotannins, Gallic acid and Ellagic acid found in the stems and roots of pomegranate.



## TRADITIONAL USES OF POMEGRANATES

- **Free radicals:**

Pomegranates are a rich source of antioxidants that helps to protect our body's cells from free radicals, which cause premature aging. With the exposure of sun light, free radical may be formed and harmful toxins from the environment.

- **Pomegranate is natural blood thinners:**

Prevents blood clots in the heart and arteries also urinary retention. The seeds are used to prevent the blood coagulating.

- **Arthritis prevention:**

Pomegranate can reduce the damage on the cartilage for those hit with arthritis. The anti-inflammatory nature is found in the fruit and stop action of the enzymes that destroy the cartilage.

- **Help in erectile dysfunction:**

The juices of Pomegranate are used to improve erectile dysfunction only moderately.

- **Prostate cancer and heart diseases:**

Two separate studies claim that pomegranate juice helps fight prostate cancer. On the basis of one lab experiment, the juices "prevent the growth of the cultured cancer cells and promoted

cell death". In the second experiment lab result it has been seen that, pomegranate juice improved the condition of the blood, hence improving the health of individuals down with cardiovascular diseases.

- **Prevention of atherosclerosis:**

Pomegranates prevent the hardening of the artery walls with excess fat, leaving your arteries fat free and pumping with antioxidants [11,12].



### MEDICINAL USES OF POMEGRANATES

- **Heart Problems:** Frequent intake of pomegranate juice can maintain good flow of the blood in the body. Along with this, it decreases the risk of heart attack and heart strokes.
- **Stomach Disorder:** Pomegranates peel, bark and leaves are used to calm the stomach disorder or diarrhea triggered due to any kind of digestive problems. Drinking tea made from the leaves of this fruit helps in curing digestive problems. Pomegranate juice is also used for handling problems of dysentery and cholera.
- **Dental Care:** The best benefit of pomegranate is that its juice, along with its antibacterial and antiviral properties, helps to reduce the effects of dental plaque.
- **Cancer:** These flavonoids are thought to be effective in counteracting various cancer radicals. The individuals that face high risk of prostate and breast cancer should start drinking the juice of this fruit, as this will help them to reduce further risk of developing cancer. Regular consumption of pomegranates can reduce the PSA levels in the body and helps to fight the existing cancer cells in the body.
- **Osteoarthritis:** Pomegranate are used to minimize the illness or disease present in various forms, like atherosclerosis and osteoarthritis etc. the fruit are Also used to unblock the arteries and capillary clogged with blood, pomegranate is capable of preventing the creation of minerals that are liable for breaking down the connective tissues.
- **Diabetes:** Consuming of pomegranate fruit juice by a diabetic patient can prevent coronary illnesses. Along with this, there is a slowdown in solidifying of the bloodstream, which can fuel non-occurrence of various heart diseases.
- **Anemia:** Healthy blood flow can be maintained in the body by consuming this fruit in any form. Pomegranate seed extract supplies iron to blood and thus, help to decrease the anemic symptoms including fatigue, wooziness and weakness and hear loss.

### Other Advantageous Forms of Pomegranate

With the passage of time, more and more people have started acknowledging the importance of consuming pomegranates. There are other advantages too, like-

- ❖ Pomegranate reduces the likelihood of having premature infants and it is also beneficial for the expected mothers to avoid having low weight infants during birth.

❖ Pomegranate seed extract also reduces the chance of having Alzheimer's disease among the elderly.

❖ It also having the anti-aging property and prevent wrinkles and thus, promoting youthful and glowing skin. Other than this, it allows a woman to overcome from her depression interval, especially from the menopause period. The pomegranate fruit juice is also helpful for treating the erectile dysfunctions.

❖ It may be also used to improve sperm count and semen quality.

The astringent features of the flower juice, rind and tree bark are considered valuable for a wide range of purposes, such as stopping nose bleeds and gum bleeds, toning skin (after mixing with mustard oil) firming-up sagging breasts and treating hemorrhoid. Pomegranate seed (of specific fruit strains) is also used as eye drops as it is believed to slow the development of cataracts <sup>[13,14]</sup>. Pomegranate is used as a gargle for a sore throat, and it is applied to the epidermis to cure hemorrhoid flare-ups. It cleanses and clarifies oral cavity, throat, esophagus stomach and chest.

## REFERENCES

1. Evreinoff, V.A. (1949). Le grenadier. fruits d'outer-mer,4(5): 161-170.
2. Zukovskij, P.M. (1950). Punica. In: cultivated plants and their wild Relatives. State Publishing House Soviet Science. Moscow., pp. 60-61.
3. Melgarejo Moreno, P. and Martínez Valero, R. (1992). El Grando. Ediciones Mundi Prensa, Madrid, 2000., 55-62.
4. Diry, N. (1975). The Pomegranate. In: *Fruit orchards*, Publ. Aleppo University, Fac. of Agriculture, Syria, pp. 302-307.
5. Mars, M. (1996). Pomegranate genetic resources in the Mediterranean region. *Proc. First MESFIN Genet. Res. Meeting* Tenerife, Spain, 2-4 Oct. 1995., 345-354.
6. Tous, J. and Ferguson, L. (1996). Mediterranean fruits. In: *Progress in New Crops* J. Janick (ed.) ASHS Press, Arlington, VA., 416-430.
7. Moriguchi, T., Omura, M., Natsuta, N. and Kozaki, I. (1987). In-Vitro adventitious shoots formation from anthers of pomegranate. *Hort Science*.22 (5): 947-948.
8. Guarino, L., Miller, T., Baazara, M. and Obadi, N. (1990). Socotra: The island of Bliss revisited. *Diversity* 6(3-4): 28-31.
9. "*Punica granatum* L. (2010). The Plant List, Version 1". Royal Botanic Gardens, Kew and Missouri Botanical Garden., 354.
10. Hasegawa, H., Matsumya, S., Yamasak, K. 1995. Reversal of efflux mediated tetracycline resistance in *Staphylococcus aureus* clinical isolates by Ginseng prosaponenins. *Phytotherapy Research* 9 (4), 260–263.
11. Iyengar, M.A. (1985). Study of Crude Drugs, College of Pharmaceutical Sciences, Manipal., 2<sup>nd</sup> ed., 13-78.
12. Kapoor, L.D., Singh, A., Kapoor, S.L., Srivastava, S.N. 1969. Survey of Indian medicinal plants for saponins, alkaloids and flavonoids. *Lloydia* 32, 297-302.
13. Mehmood, Z., Ahmad, I., Mohammad, F., Ahmad, S. (1999). Indian medicinal plants: A potential source of anticancer drugs. *Pharmaceutical Biology*., 37, 237-242.
14. *Harwood, Laurence M.; Moody, Christopher J. (1989). Experimental organic chemistry: Principles and Practice (Illustrated ed.). Wiley-Blackwell., 2<sup>nd</sup>, 122-125.*