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Zizyphus oenoplia Mill.: A SEASONAL WILD EDIBLE FRUIT

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A number of wild plants used by tribal and rural populations historically.They contribute significantly to their food security and livelihood, as they scientific inquiry and escaped recognition. During periods of natural stress, some wild edible plants and fruits are important constituents of biodiversity, and their exploitation has become a valuable livelihood strategy and fall-back option for rural households. Wild foods and rural household use information has the potential to address food insecurity and can act as a low-cost option in development programs for the poor.Wild species population profiling and protocols standardizing for the propagation of these plant groups could help to conserving the gene pool which has suffered from the ‘tragedy of the commons (Mahapatra and Panda, 2012).

Zizyphus oenoplia Mill

Ayurveda-the knowledge for long life originated in India during the Vedic period. Both Charaka Samhita and Sushruta Samhita are the core of the Ayurvedic medicinal systems, which explains the therapeutic usage of thousands of different types of plants. One such plant mentioned is *Ziziphus oenoplia Mill*. (Shukla *et al*., 2016). *Ziziphus oenoplia (L.) Mill*. belongs to Family Rhamnaceae and is commonly well known as Jackal Jujube in English. It’s a straggling shrub spread all over the temperate regions of India, Pakistan, Sri Lanka, Malaysia, and Tropical Asia. The fruits of the plant are edible and widely used in Ayurveda for the treatment of a number of health problems, such as ulcers, stomach aches, digestive, antiseptic, hepatoprotective, wound healing obesity, asthma and diuretic property (Snehi*et al*., 2020). The flowers are green in colour, in subsessile axillary cymes. The fruits contain a single seed having globose drupe, black and shiny when ripe. It is one of the folk herbal medicines that has some major pharmacological properties as a blood purifier, abdominal pain killer, febrifuge etc.

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Scientific Classification

Kingdom	Plantae
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Rosales
Family	Rhamnaceae
Genus	Ziziphus
Species	Ziziphus oenoplia (L.) Mill.

Mineral Composition

Mineral composition per gram of fruits on dry weight basis was calcium: 0.103mg/g, potassium: 0.023mg/g, magnesium: 0.192mg/g, iron: 0.823mg/g, zinc: 0.067 and phosphorus: 0.025mg/g (Devi *et al*., 2019).

Antioxidant Activity

Fruits are considered to be a rich source of antioxidants. Different solvent extracts of Ziziphus oenoplia fruits identified the presence of phenols, tannins, saponins, alkaloids, flavonoids, phlobatinins, steroids, terpenoids, cardiac glycosides and anthraquinones (Anand and Deborah, 2017). Generally, phenolic content correlates with antioxidant activity for different kinds of fruits. *Ziziphus oenoplia* fruits has phenolic content of 65mg GAE/100g (Devi *et al*., 2019). Among different extracts of the fruit, the highest antioxidant activity was found in Ethanol crude extract with 87.66±1.54% inhibition at a concentration of 640µg/mL, which is comparable to that of standard Ascorbic acid 90.72 ± 0.76% inhibition(Goyal *et al*., 2021).

The leaves of the plant had phenolic content of 57.33 mg, flavonoids-116.19 mg, flavonol-59.77 mg and condensed tannins 287.85 mg. The leaves extract also exhibited significant anthelmintic potentials against aquarium worms (*Tubifex tubifex*) but low cytotoxic activities were observed for the plant extract (Alam *et al*., 2020).

Antidiabetic Activity

Some tropical and subtropical places of Asia, including India, use the fruits of *Z. oenoplia* in the treatment of Diabetes mellitus as folk medicine without any scientific

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evidence. One of the possible approaches to decrease postprandial hyperglycemiais by reducing glucose uptake through the inhibition effect of carbohydrate-hydrolyzing enzymes namely α-glucosidase and α-amylase. In same manner maximum α-amylase and α – glucosidase inhibitory effect shown by ethanol crude extract 88.43 ± 0.58% and 85.2 ± 1.7 % Inhibition at 800 µg/mL respectively, which is comparable to the standard acarbose as reference drug 97.2 ± 0.48 and 99.12± 0.72% Inhibition. In a dose dependent manner extracts of fruit exhibited postprandial hypoglycaemic effect by inhibiting α–amylase, α– glucosidase enzyme(Goyal *et al*., 2021).

Wound healing Activity

Aqueous and alcoholic extracts of fruits of *Z. oenoplia* showed significant wound healing activity, which is comparable to Framycetin sulphate cream as reference standard drug.

The fruits of the plant are good source of vitamin c and helps in improving immunity system. Consumption of these seasonal fruits provides protection against a number of health problems like nutritional deficiencies, diabetes, heart related problems and a number of cancers.

Conclusion

Wild edible plants play an important role in the traditional food system and are also part of the culture. Almost every part of the naturally grown plants was used in history for various purposes like as food, nutrients and as medicine. Among the wild edible plants, *Z. oenoplia*is one of the plants with good nutritional and pharmacological properties. As they are easily available and so can be used by the tribal and rural people of developing countries for different purposes. Lack awareness, decreased availability and chemical composition, many of the naturally available plants are treated as wild or underutilised. More research has to be in this area to provide more scientific evidence for the use of these plants as food and medicine.



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