

Bioactive Components of Jerusalem Thorn and its Antidiabetic Effects

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Introduction

The Fabaceae (or Leguminosae) family includes the native tree known as Jerusalem thorn, which is found in the southern United States. The less well-known names for this tree are Horse Bean, Mexican Palo Verde, Guacaporó, Bagote, Huacaporí, Junco Marino, Cacaporó, Guacóporo, Huacóporo, Espinillo, and Mezquite Verde. This tree is also known as retama. Jerusalem thorn reportedly also grows naturally in northern Mexico, the Galapagos Islands, and various South American nations in addition to the southern United States. Eastern Africa, tropical and southern Africa, Pakistan, Oceania, and Central America are among the places where it has naturalised [1].

This tree typically favours wet, poorly drained environments. In semi-arid areas, it grows primarily close to creeks, rivers, and artificial water sources (bores and dams) (especially those that have a distinctive wet and dry season). It can also be found growing along roadsides, in waste areas, open forests, pastures, and disturbed locations. The USDA states that this tree can be found growing throughout the Southwest, Southeast, South, and possibly in Hawaii. Jerusalem thorn may grow up to 900 metres (3,000 feet) above sea level. It can grow along coastlines since it can withstand salt [2].

Description

Diabetes has a detrimental effect on human life. Vital organs may suffer catastrophic, long-lasting harm from untreated cases. In recent years, it has risen to the top of the list of fatalities. People have therefore worked to create numerous diabetic remedies. There are numerous plants used throughout the world to cure diabetes. Scientific studies on natural remedies could result in fresh strategies for treating numerous disorders. The plant known as the Jerusalem thorn (*Paliurus spina-christi*) is frequently used to treat rheumatism, diarrhoea, and as a diuretic. The plant's leaves are applied topically to treat boil inflammation, and its samara-like fruits are utilised as anti-inflammatory agents against kidney stones, chest infections, and eye infections [3].

In Turkey, Jerusalem thorn fruits (JTF) have also been used to treat diabetic mellitus. This plant, a member of the Rhamnaceae family, has five different species. Turkey's flora only has *Paliurus spina-christi* Mill, one of these five species. They are homonyms because *Ziziphus spina-christi* (Jujube) and *Paliurus spina-christi* (Gorse) are frequently confused with one another. However, despite the fact that these two species are related, their genres are distinct from one another. There is little relationship between their fruit and leaves in terms of plant physiology. *Paliurus spina-christi* (PSC) is a zigzag-branched, two to three metre tall and thorny bush-like plant. It has

ovate, thorny leaves, yellow blooms, and round, flat, winged, three-seeded fruits [4].

In recent years, phytochemical substances derived from these plants have been employed in particular to treat diabetes. Different methods are employed to identify phytochemical substances in plants. Liquid chromatography-mass spectrometry (LC-MS/MS) is one of the most popular. In this investigation, the LC-MS/MS technique was used to extract phenolic components from the water, ethanol, methanol, and hydrolyzed extracts of Jerusalem thorn fruits. Extracts of water are; In order to accommodate the needs of the general population, it was produced in two distinct ways utilising the infusion and decoction techniques. Because hydrolysis allows for the identification of more phenolic compounds, it is chosen as an extraction technique. Due to the fact that phenolic compounds in plants are typically linked to proteins, polysaccharides, and other organic molecules, during the hydrolysis process, these bonds are broken under the impact of warmth, yielding hydrochloric acid and aglycones. In reality, the study was inspired by a case in which someone applied to our research facility and stated that they utilised this herb to make a herbal tea to treat their diabetes and inquired as to whether this plant would be harmful to their liver. According to reports, PSC dramatically lowers elevated enzyme levels in the STZ-induced patient group but does not increase alanine amino transferase or aspartate amino transferase in the untreated control group. The phytochemical analysis of these plant fruit extracts made using various solvents and techniques was carried out, and their antidiabetic efficacy was tested *in vivo* [5].

Conclusion

This study aims to determine whether the fruit indeed has the anti-diabetic properties that locals claim it has. In this investigation, LS-MS/MS was used to examine the phenolic components of water extracts (JT-FE) made using the decoction method. Then, diabetic rats were used to test this extract's antidiabetic efficacy. The study does this to see if there is a correlation between the anti-hyperglycemic activity obtained and the phenolic compounds that have been found. In Turkey, people have utilised *Paliurus spina-christi* as a diabetes treatment. Therefore, the purpose of this study is to determine whether using this herb to treat diabetes is beneficial.

Acknowledgement

None.

Conflict of Interest

The author shows no conflict of interest towards this manuscript.

References

1. Tag, Hui, P. Kalita, P. Dwivedi, A. K. Das, and Nima D. Namsa. "Herbal medicines used in the treatment of diabetes mellitus in Arunachal Himalaya, northeast, India." *J Ethnopharmacol* 141 (2012): 786-795.
2. Silanikove, N., A. Perevolotsky and Frederick D. Provenza. "Use of tannin-binding chemicals to assay for tannins and their negative postingestive effects in ruminants." *Anim Feed Sci Technol* 91 (2001): 69-81.

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3. Pawlowska, Agata Maria, Fabiano Camangi, Ammar Bader and Alessandra Braca. "Flavonoids of *Zizyphus jujuba* L. and *Zizyphus spina-christi* (L.) Willd (Rhamnaceae) fruits." *Food Chem* 112 (2009): 858-862.
4. Pandit, Rucha, Ashish Phadke, and Aarti Jagtap. "Antidiabetic effect of *Ficus religiosa* extract in streptozotocin-induced diabetic rats." *J Ethnopharmacol* 128 (2010): 462-466.
5. Mopuri, Ramgopal and Shahidul Islam. "Antidiabetic and anti-obesity activity of *Ficus carica*: *In vitro* experimental studies." *Diabetes Metab J* 42 (2016): 300.

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