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Chemical Composition and Application of the Maclura Plant in Medicine

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Abstract: This article is devoted to the chemical composition of the Maclura pomifera plant and its application in medicine. Mackerel is valued as a valuable plant in folk medicine and modern pharmacy, especially due to its rich content of flavonoids, isoflavonoids, alkaloids and other bioactive compounds. The main chemical components identified by the studies and their biological activity expand the possibilities of this plant for use in diseases, in particular inflammation, cancer, and antimicrobial diseases. This article examines the chemical composition, biological activity and possibilities of clinical application of the maclura plant.

Keywords: Maclura, Maclura pomifera, flavonoids, isoflavonoids, alkaloids, anti-cancer, anti-inflammatory, bioactive compounds, folk medicine.

Maclura (Maclura pomifera) is a plant known worldwide and is native to North America. This plant is also popularly known as "Osage orange" or "wild orange". Due to its richness in various chemical compounds, maclura is of interest in pharmaceuticals and is used in the treatment of many diseases. This article will study in detail the chemical composition and application of macliura in medicine.

The maclura plant contains a number of biologically active compounds. The bulk of this is made up of flavonoids, isoflavonoids, alkaloids, and other polyphenolic compounds.

Among the main active components of maclura are flavonoids. Among them are isoflavonoids such as osajin and pomiferin, which have powerful antioxidant properties. Flavonoids protect cells from damage and help strengthen immunity by reducing oxidative stress in the body. In addition, flavonoids and isoflavonoids also have anti-inflammatory and antimicrobial properties.

Macliura also contains a small amount of alkaloids, which have the property of acting on the central nervous system. These alkaloids enhance the analgesic (analgesic) effects of the plant and can be used in certain neurological diseases.

The fruit of mackerel is also rich in carotenoids, in particular, substances such as beta-carotene. Beta-carotene can help slow cell aging and improve eye health. These substances have antioxidant properties and play a large role in preventing cell damage.

Triterpenoids are also found in maclura, which enhance the anti-inflammatory and antimicrobial effects of the plant. Essential oils, on the other hand, have common bactericidal and antiviral properties and can be used in various infectious diseases.

Flavonoids and triterpenoids in the chemical composition of maclura have anti-inflammatory activities and can be used in rheumatism, arthritis and other inflammatory diseases. These substances play an important role in reducing inflammation, which prevents pain and swelling.

Many studies have confirmed the anticancer properties of certain compounds of maclura, in particular the isoflavonoids osagin and pomiferin. These substances inhibit the growth of tumor cells and stimulate the process of apoptosis (cell death). For this reason, maclura is one of the interesting plants in the development of potential anticancer drugs.

Essential oils and other biologically active components of maclura have an active effect against various bacteria and viruses. This allows the plant to be used in skin diseases, infectious wounds, and other bacterial diseases.

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The antioxidant substances contained in the mackerel plant protect the body from free radicals. These substances are useful in slowing down stress and aging processes, as well as in the Prevention of cardiovascular diseases.

In folk medicine, the fruits and roots of mackerel are prepared and their decoctions, oil extracts or alcohol mixtures are used. These drugs help in the treatment of skin diseases, inflammatory diseases and even cancer. However, caution is necessary when using them, since some components of the plant have a strong effect and can cause side effects if consumed in the wrong dose.

The plant Maclura pomifera is considered a plant worthy of high evaluation with its many biologically active substances. Scientific studies on its chemical composition and therapeutic properties indicate that this plant can be widely used in modern medicine, especially in antioxidant, anticancerogenic and antimicrobial diseases. However, even today, further research on its toxicity and side effects is still necessary.

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