



Uses of *O. indicum* and its Multifunctional Aspects for Possible Pharmaceutical Uses

Sao Paulo

Department of Pharmacy, University of Brasília, Brazil

Received: 29-Mar-2023, Manuscript No. JOCPR-23-93480; **Editor assigned:** 31-Mar-2023, PreQC No. JOCPR-23-93480(PQ); **Reviewed:** 13-Apr-2023, QC No. JOCPR-23-93480; **Revised:** 26-Apr-2023, Manuscript No. JOCPR-23-93480(R); **Published:** 03-May-2023, DOI:10.37532/0975-7384.2023.15(3).63.

DESCRIPTION

Natural items having distinct pharmacological effects, particularly Traditional Chinese Medicine (TCM), are regarded as a gold mine of potential novel medications, functional foods, and dietary supplements. TCM has a high concentration of bioactive substances such as flavonoids, polyphenols, and alkaloids. These chemicals may be involved in a wide range of pharmacological activities. Searching for bioactive substances from natural products as nutrients and functional food ingredients has recently gained popularity and has gradually become a research hotspot in related fields due to people's concern about health and medication safety, as well as the obvious benefits of natural products in disease treatment and prevention. Recent pharmacological research have shown that *O. indicum* possesses a wide range of biological activity, including antioxidant, anti-inflammatory, antibacterial, analgesic, anticancer, and antidiabetic effects. According to phytochemical study, flavonoids are the primary chemical components of *O. indicum*.

The extraction procedure is critical in the manufacture of natural goods as well as the study of bioactive substances. Extraction of particular bioactive compounds from natural products is widely known to be difficult due to complex chemical components, a high number of interfering chemicals, low active ingredient content, and huge variances in physicochemical qualities. In terms of extraction methods, traditional extraction procedures such as Maceration Extraction (ME) and Soxhlet extraction are used to extract bioactive compounds from natural sources (SOXE). SOXE is commonly utilized to separate bioactive phytochemicals due to its generally thorough extraction. Although this approach offers a high yield, it also has drawbacks such as time consumption, a significant amount of solvent and low efficiency. ME have the disadvantages of a low leaching rate and being time-consuming, although component damage is difficult to induce. With the advancement of science and technology, several nonconventional extraction procedures with shorter extraction periods, greater extraction efficiency, and higher active ingredient concentration have arisen. The degradation of some components, however, may occur when they are exposed to extreme temperatures and pressure. Each extraction process has advantages and disadvantages in terms of time consumption, cost, extraction efficiency, and environmental effect. Moreover, the composition and concentration of bioactive chemicals change in extracts produced through different extraction procedures, resulting in variances in biological activity. In other words, the features of extracts are determined by the extraction processes used.

To acquire a high concentration of bioactive compounds from naturally-derived plant materials and fully explore their potential uses, a suitable extraction process must be used. As a result, the goal of this research is to give a complete investigation of the phytochemical components and possible biological activities of *O. indicum* extracts produced by various extraction procedures. UHPLC-DAD Orbitrap Elite MS was used to identify the chemical contents of *O. indicum*, and UHPLC was used to quantify four major flavonoids. Total bioactive substances, antioxidant activity, and enzyme inhibitory activities were all measured at the same time. Moreover, multivariate analysis was used to examine the changes in chemical profiles and biological parameters caused by extraction procedures. This study clarified the potential applications of *O. indicum* in the functional food, pharmaceutical, nutraceutical, and cosmetics sectors. The development of contemporary medicine and functional food is built on providing thorough knowledge on natural items. *O. indicum* was extracted in this study utilizing five distinct methods: maceration extraction, Soxhlet extraction, ultrasound-assisted extraction, tissue-smashing extraction, and accelerated-solvent extraction. To establish the application prospect of *O. indicum* extract as a possible nutraceutical source, the phytochemical, antioxidant, and enzyme inhibitory properties of *O. indicum* extracts were examined.