

Pharmaceutica 2019: Scopoletin product from four parts of Iraqi *Lycium barbarum*: its extraction, isolation and structure elucidation

Thukaa Zuhair Abdul-Jalil

Baghdad University, Baghdad, Iraq

The goal of this study was to evaluate the efficiency of ultrasound assisted extraction by both probe and bath, comparing between them, and the conventional (Soxhlet) extraction method for extraction of coumarins especially scopoletin in fruits, leaves, stems and roots of Iraqi *Lycium barbarum*.

Introduction:

Lycium barbarum (Awsaj), a wild plant that have a place with Solanaceae family, fills in as a wellspring of notable bioactive mixes like coumarins which have numerous significant organic exercises. The berry is fusiform or elongated formed with a length going from 6-20 mm and width 3-10 mm. The orange or dull red berry has a little stylar scar projecting from the top, and skin having contracted appearance. The mash is beefy and delicate with a severe and sweet taste. The berry is eaten crude, expended in juice structure or added to tea or wine. The natural product is additionally handled to make colors, powders, and tablets. Also, it is utilized as food and therapeutic plant in East Asia. Since the start of the century, the plant is regularly called as Goji in China. Different names incorporate boxthorn, wolfberry, and Chinese wolfberry. The name of this plant is gugija in Korea and kuko in Japan. *Lycium barbarum* is for the most part found in East Asia and developed especially in South China, Korea, and Japan. Most of monetarily delivered *Lycium barbarum* originate from Ningxia Hui Autonomous Region in focal North China and the Xinjiang Uyghur Autonomous Region in western China.

In present day medication, a few speculations propose that oxidative harm of biomolecules increments with age and is hypothesized to be a significant causal factor of different maturing issue. Invulnerable dysregulation, irregularity of apoptosis and DNA harm are contributing variables to age-related pathologies and their related horribleness and mortality. The idea of against maturing by cancer prevention agents, for example, *Lycium barbarum* has been upheld by a line of proof and has been explored in various models. In the interim, *Lycium barbarum* has an assortment of pharmacological capacities, including immunoregulative, against apoptotic exercises and lessening DNA harm, which can hinder organic maturing. Hence, countless confirmations propose that *Lycium barbarum* is a successful enemy of maturing specialist.

The leaves, natural products, and the root bark of *Lycium barbarum* contain bottomless polysaccharides, carotenoids, flavonoids, alkaloids, amides, peptides, anthraquinones, coumarins, lignanoids, terpenoids, sterols, steroids, natural acids, anthocyanins, fundamental oils, and glycolipids. *Lycium barbarum* has an expansive scope of pharmacological exercises,

which is believed to be for the most part because of its high convergence of *Lycium barbarum* polysaccharides (LBPs). In this audit, we present the counter maturing properties of *Lycium barbarum* constituents, for example, LBPs (involving 5%-8% of the dried natural products), phenolics, stable nutrient C (Vc) simple AA-2 β G, carotenoids (zeaxanthin and β -carotene), betaine, cerebroside, β -sitosterol, flavonoids, and nutrients (specifically, riboflavin, thiamine). Likewise, we fundamentally pondered the accessible logical proof for its enemy of maturing impacts.

Lycium barbarum have a high substance of phenolics, including caffeic corrosive, p-coumaric corrosive, rutin, scopoletin, N-trans-feruloyl tyramine, and N-cis-feruloyl tyramine, an unreported N-feruloyl tyramine dimer was portrayed as the most inexhaustible polyphenol disconnected from the berries. The polyphenolic constituents might be answerable for the hindrance of lipid peroxidation and upgrade the cancer prevention agent exercises of ethanol concentrate of *Lycium barbarum*

Scopoletin has cell reinforcement properties, calming action, and spasmolytic activity. It applies apoptotic and antiproliferative impacts on prostate malignant growth cell line. Scopoletin is the dynamic segment of the product of *L. barbarum* for repressing PC3 cell multiplication. Scopoletin has likewise demonstrated to have cell reinforcement movement. The structure of scopoletin shows that the catechol bunch essentially adds to the cell reinforcement exercises of scopoletin. Scopoletin could apply a beneficial outcome on against maturing identified with autophagy through tweak of p53 in human lung fibroblasts. Moreover, scopoletin improves the degree of interpretation factors, for example, Nrf-2 and p-FoxO1 identified with hostile to maturing. Likewise, scopoletin balances the reinventing proteins

LBPs are a gathering of water-dissolvable glycoconjugates with a sub-atomic load of 10–2300 kDa and involve 5–8% of the dried natural products. The helpful wellbeing impacts of LBPs, including cancer prevention agent and antiaging impacts, expanded digestion, antiglaucoma impacts, insusceptible guideline, anticancer impacts, neuroprotective properties, and antidiabetic impacts, have been accounted for. As indicated by the Chinese comprehension of *Lycium* concentrates and items, the substance of LBPs is significant for the viability of *L. barbarum*. Along these lines, as bioactive constituents of *L. barbarum*, LBPs have numerous natural capacities to improve individuals' wellbeing. The organic elements of LBPs are mind boggling and multifaceted on account of the connection between the physiological structure and elements of LBPs.

The relationship and system among LBPs and human wellbeing ought to be completely comprehended. So as to give an extensive comprehension of LBPS, the extraction techniques, structure, organization, and natural elements of LBPs were summed up and examined in this audit. We gathered and summed up the relative substance from past reports to give a hypothesis premise to extensively understanding and using LBPs in clinical and food fields.

Techniques:

This objective was accomplished by contrasting the mass yield extraction by a brisk and simple methodology for recognizable proof and evaluation of bioactive scopoletin in four pieces of plant utilizing elite meager layer chromatography (HPTLC) which affirm the nearness of scopoletin in four pieces of *Lycium barbarum* plant.

Results:

The results show that the leaves of the plant extracted by probe UAE gave the highest concentration (0.1876 mg/ml) of scopoletin followed by fruits (0.145mg/ml), stems (0.1396mg/ml) and the least was roots (0.089mg/ml); according to these results; the isolation and purification of scopoletin from of *Lycium barbarum* leaves was done by silica gel column chromatography and the isolated compound (scopoletin) was identified by measuring melting point, Fourier transforms infrared spectroscopy (FT-IR), ¹H nuclear magnetic resonance spectroscopy (NMR) and liquid chromatography/ mass spectroscopy (LC/MS)