

**MODERN METHODS OF OPTIMIZING THE ETHNOMEDICINE OF
CORIANDER SEED (*Coriandrum sativum* L.)**

Sh.Z. Jo'rayev, N.S. Bozorova

*Samarqand State Medical University, Faculty of Organization and Management of
Pharmaceutical Affairs, Samarkand, Uzbekistan*

In recent years, growing interest in preparations developed on the basis of natural raw materials has further strengthened the connection between ethnomedicine and modern analytical chemistry. Coriander (*Coriandrum sativum* L.) seed has long been used in the traditional medicine of Central Asia and Uzbekistan to improve digestion and as an anti-inflammatory and antimicrobial agent. However, traditional-use experience is often based solely on knowledge passed down from generation to generation, without precise scientific grounding. For this reason, an in-depth study of the biologically active substances contained in coriander seed using modern physicochemical and instrumental methods - in particular ATR-FTIR spectroscopy and gas chromatography-mass spectrometry (GC-MS) - and the optimization of extraction and analysis processes are of pressing scientific and practical importance.

The aim of the study is to analyze the biologically active compounds contained in coriander seed from an ethnomedical perspective and to draw scientifically grounded conclusions by optimizing modern analytical methods (ATR-FTIR, GC-MS) for their identification.

Optimization combined classical extraction with modern instrumental analysis. Extraction conditions (solvent, temperature, duration) were varied to maximize yield of active constituents. Attenuated total reflectance Fourier-transform infrared spectroscopy (ATR-FTIR) confirmed chemical identity and purity at each processing stage, while gas chromatography-mass spectrometry (GC-MS) identified and quantified volatile components, including the essential oil fraction, yielding a detailed compositional profile.

Comparative analysis identified an optimized protocol that improves batch-to-batch consistency, addressing the variability that has long limited the regulatory acceptance of ethnomedicinal coriander-based products. Literature review confirms that coriander seed's bioactive constituents (linalool, terpenes, phenolics, flavonoids) underlie its reported antioxidant, antimicrobial, and anti-inflammatory properties, with efficacy and safety depending strongly on extraction consistency. These results provide a scientific basis for standardizing coriander seed preparation for ethnomedicinal and pharmaceutical use and for formulating evidence-based recommendations for its rational application in Uzbekistan.

The topic of modern methods for optimizing coriander seed use in ethnomedicine represents a pressing area of research that allows natural raw materials to be studied on a scientifically grounded basis, linking traditional knowledge with modern analytical solutions and enabling their application in practice.