

## IDENTIFICATION AND SIEVING ANALYSIS OF PLANTS - A SOURCE OF BIOLOGICALLY ACTIVE SUBSTANCES FROM THE AREA OF DOSPAT MUNICIPALITY, WESTERN RHODOPES, BULGARIA

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### Abstract

Bulgaria has a rich diversity of medicinal plants, with around 770 species, or 19% of all plant species in the country. According to the floristic regional division of the country, the Rhodope Mountains are divided into 3 regions: Western, Central, and Eastern. Dospat municipality falls within the area of the Western floristic region. The present study aimed to carry out the identification and sieve analysis of three plants. This study serves as a basis for subsequent research on the content and distribution of biologically active substances in the selected plants and can propose an extraction model for their further optimal extraction.

The plants identified were thyme (*Thymus callieri* Borbás ex Velen), thistle (*Onopordum acanthium* L.), and hawthorn (*Crataegus monogyna*). The cropped plants were examined for the presence of both inorganic and organic impurities. Once impurities were removed, the first quality grade plant material was sorted, dried, and ground. The ground plant material was then subjected to sieve analysis, which involved sorting the material into six classes based on particle size. The density of distribution of the size fractions was determined and analyzed for each of the three crop years studied. The study aimed to investigate the variation in the size distribution of the plant material over three crop years.

The results showed the nature of the variation in the size distribution of the plant material over the studied range of 0 - 2,000 µm. The density of distribution of the size fractions varied between the different crop years, indicating that factors such as weather and other environmental conditions may have influenced the size distribution of the plant material.

The obtained result of the grinding and fractionation can serve as a basis for additional research, contributing complete and qualitative extraction of biologically active composites from the herbal plant source.

**Key words:** Identification, Herbal plant source, Sieve analysis, Sieve fractions.