

EVALUATION OF ANTIMICROBIAL AND ALLELOPATHIC PROPERTIES OF *ARTEMISIA DUBIA* WALL.

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Plant biotechnology is one of the most dynamically developing fields of plant biology that modifies the most important patterns of food and raw material production. This area of biotechnology also includes energy crops. These plants produce a lot of biomass [1]. This is one of the fastest growing areas of alternative energy. In Lithuania, one of these plants investigated as potential plant for biomass, is from the *Artemisia* tribe - *Artemisia dubia* Wall. [2].

The aim of the study is to evaluate the antimicrobial and allelopathic properties of this energy plant *Artemisia dubia* Wall., in order to maximize the plant's potential for use.

A. dubia was collected from three different experimental areas with fertilization type: non-fertilized and fertilized with two mineral nitrogen fertilizers of different nitrogen amount - N₉₀ fertilizer and N₁₈₀ fertilizer, during different period of vegetation [2]. Samples were obtained from two different regions of Lithuania: Akademija, Kedainiai district. (55.3896° N, 23.8624° E) and Trakų Vokė, Vilnius district. (54.6238° N, 25.1113° E). Collected raw material was air-dried in Lithuanian Research Centre for Agriculture and Forestry.

According to the latest results on *A. dubia* grown in Lithuania, exceptionally high productivity of this energy plant was obtained, however, in order to make full use of this valuable renewable source rich in phenolic compounds and essential oils it is necessary to investigate the antimicrobial, allelopathic and other properties of volatile and non-volatile compounds extracts. Preliminary data from previous studies [3] demonstrated the potential of this raw material for the accumulation of polyphenols and essential oils.

In this research, the antimicrobial activity of different extracts were evaluated by using modified antimicrobial analysis methods [4]. Different bacteria, such as Gram-positive *Staphylococcus aureus* and Gram-negative *Escherichia coli*, were selected for this study. For the evaluation of allelopathic properties [5], the commonly used plant, sedative salad (*Lactuca sativa* L.) was chosen.

The report will include an evaluation of the antimicrobial and allelopathic properties of the *Artemisia dubia* Wall., the conditions of the experiments (bacterial strains and media, concentrations, methods, etc.) and a statistical analysis.

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