

# **Antioxidant properties of clover sprouts (*Trifolium pratense* L.) depending on morphological part of the plant**

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## **INTRODUCTION**

*Trifolium* L., leguminosae, well known as red, meadow, creeping or craw clover, is one of the most important fodder plant in Poland. Some authors suggest that nutritional and medicinal value of clover lies mainly in its high content of carbohydrates, proteins, vitamins and chemoprotective substances such as glucosinolates, flavonoids, and isoflavones. The isoflavone constituents have estrogenic properties. They may play an important role in cancer prevention, moderation of menopausal symptoms and give others health effects. The presence of such isoflavones as genistein, daidzein, formononetin and biochanin A in clover has been confirmed [1,2].

So far, the clover is unappreciated because known as a fodder plant, it is not an attractive element of the human diet. Therefore, an alternative source of antioxidants to compared with whole plants can be just clover sprouts. Recently, vegetable sprouts have become increasingly popular. Many studies have also reported correlations between amount of nutrients (such as crude protein, crude fat, crude fiber, vitamins, minerals, isoflavones etc.) and cultivation environment, including different locations and temperature [2,4].

The purpose of this study is determine antioxidant properties of clover sprouts depending morphological part of the plant: leaves, stems, roots and whole sprouts.

## **EXPERIMENTAL METHODS**

The total phenolic contents of clover sprouts and their parts were determined by the Folin-Ciocalteu colorimetric method [5]. The antioxidant activity as radical DPPH scavenging of sprouts extracts was evaluated according to the method of Yen and Chen [6] with slightly modifications.

## **RESULTS AND DISCUSSION**

The results showed that the highest concentration of polyphenols found in leaves. Analysis of free radical extinction ability demonstrated also, that the leaves have the strongest antioxidant properties. The smallest antioxidant properties obtained for the roots.

## **CONCLUSIONS**

Due to the antioxidant activity of the most interesting morphological part of clover sprouts are leaves. The data on the content of antioxidant compounds of clover sprouts require further detailed studies, which will determine the impact of changes in the analyzed compounds on the antioxidant activity of the tested sprouts.

## **REFERENCES**

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## **CONFLICT OF INTEREST**

It is required of all authors to provide any relevant information concerning personal or professional circumstances and relationships that might reasonably be expected to affect the author's view on the subject.