COMPARISON OF SELECTED ESSENTIAL OIL COMPONENTS OF ACHILLEA MILLEFOLIUM AGG. FROM THE NATURE, ORGANIC AND CONVENTIONAL FARMING.

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The most significant components in *Achillea millefolium* agg. are essential oils (α-pinene, sabinene, β-pinene, α-terpinene, eucalyptol, borneol, caryophylene, chamazulene etc.). The widest range of active substances was found in the following species: *A. millefolium* L., *A. pannonica* SHEELE and *A. collina* HEIMERL. For this study were selected because these 3 species with the highest content of essential oil content and assessed their individual components. Plant material was collected from nature, organic farming and conventional cultivation. The material was collected manually during full blossom in the period from 15 June to 30 September 2010. It was then dried at maximum temperature of 35 °C. The quantitative content of essential oil was determined by means of distillation by water steam (3 h.) according to the methods stated in Czech Pharmacopoeia (2002). The proportion of volatiles in the yarrow essential oil was determined using a gas chromatograph HP-4890 with a flame ionisation detector (GC-FID) equipped with an auto-sampler.

The comparison of all three ways of growing the species *Achillea pannonica* has shown that chamazulene was represented in the highest amount – in the species collected in nature (36.39%), organic grown species 32.92% and conventionally grown species 23.65%. Another significant component of the essential oil is β-pinene with the highest amount found in the samples collected in nature 10.52%, organic grown samples 2.44% and conventionally grown samples 1.67%. In the species of *Achillea colina*, the highest amount of chamazulene was found in the samples of conventional growing 54.06%, organic farming 44.59% and nature 32.44%. The amount of β-pinene was the highest in plants from nature 11.92%, conventionally grown 7.40% and organic grown plants 2.20%. In the species of *Achillea millefolium*, the amount of chamazulene was the highest in conventionally grown plants 51.86%, in samples from nature 36.03% and organic grown 21.46%. The amount of β-pinene was the highest in organic grown plants 20.40%, wild plants 19.16% and conventionally grown 17.23%. In the observation of the amount of chamazulene in the species of *A. millefolium*, the author (Mockute, Judzentiene, 2003) states its average content in the location in nature from 9.8 to 23.2%, we measured the range of 21.46-54.06% in the experiment. The amount of β-pinene is stated 0.3-26.5% (Shawl et. Al. 2002), we measured the range of 20.04-20.22% in this work. Measured results correspond with the data stated in the literature. However, statistically significant difference did not manifest between individual ways of growing. Higher crops in ecologically grown plants were achieved in the experiments carried out with the genus *Matricaria*. Therefore we can assume that in the species of *Achillea* grown in organic farming there could be higher content as well as increased values in individual components of the essential oil than in conventionally grown plants. We will observe this assumption in following growing seasons.

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