



Latvijas Zinātnes padome



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Project: Izp-2021/1-0651

„Genus *Hypericum* as a new valuable source of tocotrienols and tocochromanol-related molecules – from ornamental crop to industrial applications”

Summary (01.01. – 31.12.2022)

In obtaining the *H. perforatum* seed samples, there has been successful cooperation with 125 botanical gardens and several cooperation partners from 29 countries on three continents: Eurasia from Spain and Norway to Kyrgyzstan and Taiwan, North America and Australia.

With the support of Botanical Gardens, we receive over 50 species of *Hypericum*. The seeds were sowed at the end of March and the beginning of April. Plants were grown in a greenhouse until reaches 2-3 cm and then were replanted into separated small pots for each plant. After 6-8 weeks plants were replanted into bigger pots or directly into the field. Plants in the field were planned in several spots directly to the soil with and without covering the soil using plastic and non-woven fabric. During plant growth, between August and November, were collected leaves, stems, flower buds, flowers, seeds, and seed pods.



H. perforatum was subjected to checking the effect of the sun limitation (simulation of the combination of cultivation of St. John's wort and the use of solar panels) on the growth of hypericum (biomass) as well as the subsequent effect on the phytochemical profile of the plant material.

From two botanical gardens were obtained *Hypericum* cuttings. Eight and nine species were obtained from Cambridge University Botanic Garden, UK and Salaspils Botanic Garden, Latvia, respectively. Cuttings were used to grow new plants as well as for the phytochemical profile. In 2022 was collected a wild *H. perforatum* in different locations in Latvia, Lithuania, and Poland for phytochemical comparison.

The leaves of *H. androsaemum* and *H. inodorum* were collected in large quantities (10 – 20 kg of each species), dried by four different methods (in the room, conventional oven, microwave-vacuum drier, and freeze-dried), aimed for comparison of phytochemical losses during using of different drying techniques.



After the season, plant material was collected both in the greenhouse and in the field to compare the phytochemical composition depending on the crop (field vs greenhouse). Several plants of each species were catted to investigate the effect of cutting and winter hardness.

