



## NJF Seminar 399

### **Beneficial health substances from berries and minor crops –**

- How to increase their concentration in cultivated species, eliminate losses in processing and enhance dietary use

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## Processing of *Rhodiola rosea* and *Bergenia crassifolia* raw materials for dry extracts

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The aim of the research was the processing of standardised dry extracts from root yield of *Rhodiola rosea* and leave yield of *Bergenia* sp. The plants were cultivated in the experimental field of Agrifood Research Finland – Mikkeli (61° 44' N, 27° 18' E) during 2002-2006. *Rhodiola* roots were harvested in September 2006, washed, sliced and dried at 40-55 °C in an air forced dryer. The *Bergenia* sp. leave yield was a mixture of 30 accessions, collected around Mikkeli. The leaves were harvested in August-September 2006, sliced and dried at 40-55 °C.

The liquid extraction of both plants were based on CRS-Biotech own methods (Siivari, CRS 1996, Siivari and Tolonen, LTT 2003).

The general dry extract procedure includes the following steps:

1. HARVEST > 2. PRE-POCESSING > 3. INTERMEDIATE STORAGE >
4. QUALITY CONTROL OF RAW MATERIAL > 5. LIQUID EXTRACTING >
6. PRESSING AND FILTERING OF LIQUID EXTRACT > 7. CONCENTRATION > 8.
- DRYING > 9. POWDERISING > 10. QUALITY CONTROL AND STANDARDISATION >
11. PACKING

Results: According to the results, the washing time had no effects on the contents of the phenylpropanoid contents of the roots. The average total rosavin content of *Rhodiola* roots was 1.472 %, ranging between 0.92 and 2.02 %.

Both extraction experiments were technically succesful. The dry extract yield of *Rhodiola rosea* root was 8.2 %, the dry extract yield of *Bergenia* leaves was 21.8 % The end quality of the dry extracts were close to the international requirements. The salidroside and the total rosavins content of *Rhodiola* extract was 1.2 % and 2.4 %, respectively. The arbutin content of *Bergenia* extract was high, 19.87 %.

Conclusion: The extraction methods were suitable for production of these novel extracts and it seems possible to produce standardised dry extracts from these plants in Finland. The commercialization of these results depends mainly on the effective field production techniques and the realistic price of the cultivated plant raw materials for industrial processing.