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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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Plant gene bank collections - sources of variation in health substances

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Gene banks and national plant genetic resources (PGR) programmes have been established to conserve genetic resources of domesticated plants. However, an equally important task of these institutions is the promotion of the utilization of these resources. Our common Nordic Gene Bank (NGB, www.nordgen.org/ngb) was founded already in 1979 to conserve the biological cultural heritage of this region. NGB has a seed storage containing approximately 32 000 seed samples. Vegetatively propagated material, like fruit and berries, is kept in each participating country mainly as clonal archives in the field. The national PGR programmes have the main responsibility of managing these collections. Some information of the material and the collections can be found in the NGB Internet databases. Work is going on to include all the Nordic collections into the common database to allow better availability of the conserved material for all interested users.

Variation of the beneficial health substances found in plants is the result of growing conditions (environment) and genes directing the growth (genotype). Evaluation of genetically diverse material is likely to reveal diversity also in the amounts and compositions of the secondary metabolites and other chemical compounds. Plant gene banks and clonal archives are specialized in collecting and preserving diversity. Old land races and traditional cultivars have wider genetic base than modern cultivars, and thus are also good candidates for studies of active compounds. NGB and the national PGR programmes have expertise in the genetic variation of the plant collections, based on the information of the origin of the accessions, morphological evaluations and in some cases also molecular analyses, such as DNA-markers. Our hope is to be more efficient in combining our knowledge and resources with the research of health and nutritional substances.