

A project to look in detail at the chemical composition of different varieties of some fruits and potatoes offers the opportunity to enhance our basic understanding of their nutritional properties, paving the way to improved crops and better nutrition.

Berry good nutrition



The N.I. Vavilov Research Institute of Plant Industry in Russia maintains an extensive collection of plants that produce small fruits—such as currants and blackberries—that are known, in general, to be extremely rich in nutritional components that contribute to good health. These include antioxidants, which help to mop up free radicals—highly reactive molecules that can damage cells and that are associated with many different diseases. A single cup of red currants, for example, can provide an adult with their entire daily requirement for antioxidants. However, scientists know little about the nutritional composition of different berry species and even less of the differences among varieties within each species.

One of the many samples of potato supplied by the N.I. Vavilov Research Institute of Plant Industry for analysis in Luxembourg.



A new Bioversity project launched in 2007 and funded by the government of Luxembourg aims to fill this knowledge gap. The project brings together the analytical expertise of the Centre de Recherche Public – Gabriel Lippmann in Luxembourg and the collections of the Vavilov Institute to evaluate accessions of *Ribes* (currants), *Rubus* (blackberries), *Lonicera* (honey berry), *Sorbus* (rowan or mountain ash), *Vitis* (grape) and, for good measure, potato (*Solanum tuberosum*).

A preliminary meeting of the partners at Bioversity headquarters in Rome set out the directions the work will take. The main thrust of the project will be to measure the nutritional components of the species and varieties. These will include carotenoids such as lycopene and lutein that are known to be beneficial to human health. In addition, because all the species are usually propagated vegetatively, the project also aims to develop better techniques for long-term conservation.



A scientist operates a rotating evaporator, used to prepare samples for biochemical analysis.

Many of the fruit varieties are now maintained only in field genebanks that are threatened by pests and diseases and abiotic stresses such as drought or frost. The project partners will work together to improve techniques to store the varieties as *in vitro* test-tube plantlets and ultimately to develop cryopreservation protocols that allow the material to be stored long-term in liquid nitrogen without damage.

In addition to the scientific community, project partners intend to make their results available to the wider public, especially to policy-makers. This will start with links to policy-makers in Russia and later in the European Union. In both, the goal is to encourage development of policies that will enhance the economic opportunities for growers of the crops and that will deliver health and nutrition benefits to consumers.

Further information
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