Spain: Advances in genetic improvement of potatoes

The Basque Agricultural Research and Development Institute, NEIKER-Tecnalia, has made advances in the genetic improvement of potatoes with the goal of obtaining varieties with high levels of bioactive compounds (anthocyanins, phenols and total carotenoids), as well as a healthy antioxidant capacity, adapted to the region's growing conditions.

In addition to being a staple food and one of the main food crops worldwide, potatoes contain a wide range of minerals and phytochemicals with potentially healthy effects. Increased awareness of the importance of the consumption of these phytochemicals (substances that help protect cells from cancer-causing damage) and the growing interest in the development of new products with specific organoleptic properties have led to the emergence of various genetic improvement initiatives.

New varieties have recently been developed that are characterised by containing pigments that play a double role. On the one hand, they are very healthy, mostly due to their antioxidant properties, and on the other, they make the product have an intense purple or red colouration that is very attractive to the consumer, which entails new market opportunities.

Some of the most studied compounds from the perspective of genetic improvement are, on the one hand, chlorogenic acid, both for its implications for human health and for its functions in the defence of the plant against pathogens, and on the other, the group of carotenoids, since in addition to being associated with an intense yellow colour, some of the major carotenoids in potatoes are considered of special importance for ocular health and the reduction of the risk of suffering from age-related macular degeneration.

The concentration, distribution and relative composition of each of the compounds in the potatoes are also strongly influenced by environmental factors, such as crop management, climate, soil, pest and disease incidence, harvesting time, mechanical damage, time and storage conditions.

The research, which NEIKER-Tecnalia has been involved in since 2014, aims for the obtainment of varieties with high levels of healthy bioactive compounds (anthocyanins, phenols and carotenoids), as well as antioxidant capacity, adapted to the growing conditions of the region. To this end, there has been an evaluation of a number of red and purple-fleshed varieties which had a low degree of adaptation and production, and then crosses have been made in order to obtain optimum varieties from a productive, nutritional and marketing point of view.

Throughout this year, comparative agronomic trials will be carried out, as well as the multiplication of the most promising clones that will soon constitute new varieties for their further development and marketing.

NEIKER highlights the importance of having clones like the ones obtained. "For producers, it is interesting to have access to purple potato varieties adapted to a wide range of climatic conditions. Furthermore, these materials include natural antioxidant compounds, which are attractive from a nutritional and visual point of view, both for professionals in catering and hospitality and for end consumers."

Lien article : http://www.freshplaza.com/article/176116/Spain-Advances-in-genetic-improvement-of-potatoes