Submitted Abstract

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Abstract

The biodiversity conservation is one of the most debated issues in recent years from the local to the global level.

The loss of biodiversity does not only concern wild species, but also species, varieties and races of agricultural and food interest (agrobiodiversity), which have been subjected to processes of domestication and selection since the birth of agriculture.

This loss affects the food and traditions that identify the territories, in particular in the mountain areas where the added value in terms of economic and historical-cultural wealth is decreasing more and more.

Bean (Phaseolus spp.) is one of the most cultivated legumes for direct human consumption, due to the protein content (about 20%), starch with low glycemic index (about 38%), B vitamins, molecules with antioxidant power, minerals, lipids (about 3%, mainly made up of polyunsaturated fatty acids). However, some varieties have a non-negligible content of anti-nutritional factors (phytates, inhibitors of digestive enzymes and hemagglutinins) which are reduced by pre-cooking treatments (such as soaking in water) and cooking.

Beans are traditionally consumed as a source of protein instead of meat in countries in poorer rural and marginal areas. In fact, the bean has been for centuries one of the fundamental foods of the peasant world, including that of Lombardy region (Northern Italy). With the industrial development, the consumption of beans has undergone a contraction. The demand for legumes has varied due to the change in food styles, the smaller number of small-sized farms (those traditionally dedicated to these productions) and the overall decrease in land for agricultural crops. Nowadays, there has been a renewed interest in beans from consumers residing in northern Italy. It was mainly the local varieties (landraces) that attracted the attention of consumers.

In this work, 30 different bean landraces cultivated in Lombardy were collected and studied for promotion and conservation plant biodiversity on the farm as it is aimed at the study and enhancement of little or no-known bean cultivars (not present on the market) now grown/preserved by a few farmers, therefore a risk of extinction. The landraces were characterized by SSRs to assess the genetic structure and to assist future breeding programs. This study will contribute to the research, characterization, promotion and conservation of PGRFA (Plant Genetic Resources for Food and Agriculture).