



Situational Analyses of the Current State of Plant Genetic Resources Important for Food and Agriculture in Georgia (Caucasus Ecoregion)

Maia Akhalkatsi*, Guranda Gvaladze and Tamar Girvliani

Department of Plant Genetic Resources, Ilia State University, Republic of Georgia

Submission: July 29, 2016; Published: August 11, 2016

*Corresponding author: Maia Akhalkatsi, Head of Department of Plant Genetic Resources, Institute of Botany, Ilia State University, Faculty of Natural Sciences and Engineering, K. Cholokashvili 3/5, 0162 Tbilisi, Republic of Georgia.

Abstract

Conservation of the genetic resources of ancient crops in Georgia are current landraces and primitive forms occurring in Georgia and to publish lists of indigenous landraces and CWRs of cereals, legumes, vegetables, vine and fruits representing direct ancestors, and endemic, rare or endangered species. National policies and comprehensive measures are urgently needed to address the problem of conserving the genetic resources of ancient crops in Georgia. It is necessary to establish a general overview of the types of crops that are current landraces and primitive forms occurring in Georgia. However, the introduction of new parasites has revealed that endemic forms of Georgian crop plants contain valuable selective disease-resistant material for genetic engineering. Establishment and maintenance of *ex situ* collections and databases should be considered just as a first step in the conservation process of ancient crop varieties. Storage of the *ex situ* collections should be improved through upgrading the present storage of the field crop genebank facilities.

Keywords: Crops; CWRs; Introduced cultivars; Landraces; Medicinal plant

Introduction

Very old archaeological findings, cultural heritages and so far existing high morphological and genetic diversity of ancient crops and their wild relatives show that Georgia has very old agricultural traditions that have preserved to our times. Food and, exceptional wine was exported from Georgia since ancient times to neighbour countries and represented main economic income for the country. The vineyards were cut off by the Muslim nations not for religious order but for reducing income by exporting the wine, which diminished economic status during the occupation of the country [1].

In the early 1990's, until Georgia get independence, it was one of the main producers and exporters of agricultural products throughout the Soviet Union. Its exports were 70% higher than its imports [2]. In 2009, the imported agricultural food amounted to 1 156 billion US\$ (82,5%) and the export was only 246 million US\$ (17,5%) [3]. This means that agricultural sector oriented in the past for export was destroyed. As a result, the active increase of import of agricultural food products caused almost complete collapse of agriculture in Georgia. In 2004 total agricultural production had fallen by more than half compared to the pre-independence period [2]. A severe impact on agricultural exports had as well the Russian Federation's embargo on Georgian

products, imposed early in 2006, affecting the livelihoods of rural people. Since 2010, the export has begun to increase, although, import still represents very significant amount and value. Therefore, nowadays, opportunity of significance for Georgian entrepreneurs and foreign investors in the food and agricultural sector might be presented by export opportunities either as part of an import substitution orientation.

Besides the diminishing of the amount of agricultural products, the main threat to agrobiodiversity in Georgia is the loss of landraces and ancient crop varieties. These process has started from 1950s when 'kolkhozis' reached extreme level of development in soviet republics and almost all the local varieties of cereals (wheat, barley, rye, oat, Italian millet and millet), legumes (peas, lentils, common vetch and faba bean), and landraces of grapes have been disappeared. Only the gene banks and living collections in Georgia and foreign countries hold germplasm of landraces extinct in the local farms. There are many threats to these oldest of crops in the modern period. Protection measures in the country are still not being implemented at an appropriate rate. National policies and comprehensive measures are urgently needed to address the problem of conserving the genetic resources of ancient crops in Georgia. It is necessary