

INVESTIGATION ON THE MOLECULAR TRACEABILITY OF PLANT AND ANIMAL GENETIC RESOURCES IN THE EARTHQUAKE-HIT REGION OF UMBRIA

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DNA-based traceability of genetic resources is a tool for both conservation and commercial valorization of local plant and animal food products. This work aims at developing simple screening procedures for the implementation of molecular traceability protocols along the commercial and food chain for two typical genetic resources of the Umbria region: “Capra della Valnerina” and “Lenticchia di Castelluccio”. “Capra della Valnerina”, also known by names that refer to the characteristic two white facial lists, is a local breed reared primarily in Valnerina. For this study, animals belonging to 9 different farms were collected. Blood samples were collected from 24 animals; 20 samples of two cosmopolitan breeds (Camosciata delle Alpi and Saanen) were also included. A panel of 16 SSR markers was used with the objective to select a minimum number of markers capable to reliably identify the local breed from cosmopolitan ones. “Lenticchia di Castelluccio” is a typical IGP lentil from Castelluccio di Norcia, highly appreciated on the local and national markets. We analyzed 1) four populations from local producers of Castelluccio collected in 1994, before the IGP was awarded, conserved in the germplasm bank of our Department; 2) four populations collected in 2016 at local retailers; 3) two “Lenticchia di Castelluccio” commercial samples purchased at grocery stores in Perugia. One cultivar from Turkey (Kislik) and one from Canada (Laird) were included as controls. SSR markers published by the literature were preliminarily assayed, and 14 markers (two per chromosome) were selected. The first results showed that the local goat is clearly distinguishable from the cosmopolitan breeds by using SSR markers. As regards lentil, we observed that both the 1994 and the 2016 Castelluccio populations are heterogeneous. Two 2016 populations resemble the original 1994 populations, whereas two do not. For some markers, alleles not found in the 1994 populations are present in both the 2016 populations and in the grocery store samples. Small seed size and heterogeneous seed coat color seem to characterize the 1994-like samples. Our results indicate that genetically distinct materials similar to the 1994 Lenticchia di Castelluccio are still cultivated and sold by some local producers, but other genetically different materials are also commercialized, which is allowed by the IGP protocol. We believe that actions directed at preserving genetic distinctiveness of Lenticchia di Castelluccio can still be undertaken.

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