

## **DNA TESTING AS A MEANS TO PROTECT ‘SAN MARZANO’ PDO PRODUCTS**

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*SSR, blind analysis, ‘San Marzano’, peeled tomato, traceability*

The tomato is one of the most frequently consumed vegetable world-wide and its production is largely based on hybrid varieties. However, some traditional cultivars play a significant role in the world market. One example is the ‘San Marzano’, a well-known local variety whose production is defended by an EU Protected Designation of Origin (PDO) label.

In the food sector, there have been cases that involved the substitution of a premium product with a less expensive or less desirable item, suggesting the possibility of deliberate mislabelling for economic gain. The present study shows that SSR markers can identify products of the tomato-food chain but also reveal mislabelling of commercial products.

We firstly used ten SSR markers to discriminate and seven blind coded lots of tomato berries, allowing the identification of five samples. Furthermore we also analysed commercial peeled tomatoes that were labelled as ‘San Marzano’. Out of the ten SSR employed, seven successfully amplified fragments smaller than 200 bp from DNA isolated from tomato products. The allelic profiles obtained from the peeled tomatoes labelled as ‘San Marzano’ did not match the profiles of the ‘Kiros’, ‘San Marzano 2’ or of other genetically close accessions that can be used for the PDO production. Thus, molecular fingerprinting indicated that it is possible to exclude the presence of ‘San Marzano’ fruits in the analysed commercial products.

We demonstrated that selected SSR markers are a useful tool to protect the value of products entering and exiting the tomato food chain, as they are able to reveal mislabelling in commercial products.