Formation of first expert tasting panel of black truffle (*Tuber melanosporum*)

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INTRODUCTION

The black truffle (*Tuber melanosporum*) is one of the most prized food condiments for its organoleptic characteristics. Concerning commercial quality control of truffles,UNECE STANDARD FFV-53 classifies truffles in three categories according to morphology, external appearance and weight: Extra, First and Second class (Figure 1). However, truffles are mainly appreciated by their aroma, and this regulation does not take it into account.

**“Extra” Class**
- Superior quality: Rounded shape, more or less regular and lobed, Free from defects
- First category: Rounded shape, more or less regular, ≥ 10 g
- Second category: Allow defects in shape, development, colouring and slight superficial damages cause by pests

Figure 1. Truffle classification by UNECE STANDAR FFV-53

This research allows to establish categories by sensorial parameters, helped by flavour instrumental analysis techniques, creating the first expert tasting panel specialized in black truffle.

MATERIAL & METHODS

A group of experts (producers, retailers, chefs, pickers and food scientists) were selected, taught on truffle quality and the aromatic description terms of truffles, *T. melanosporum* specifically, following the ISONORM 11035 as a pre-training phase. Tasters trained by a preliminary attribute list classified fresh truffles using a 10-point scale.

A tasting sheet called “ATRUTER model” was designed with attributes selected. Firmness, limpidity, morphological factor, including maturity, and aromatic quality were evaluated over 100 points. Final aroma attributes included were: “intensity”, “aromatic complexity”, “equilibrium of aroma”, “durability” and “quality”. From these data, the panel’s performance was checked regarding the ability to discriminate among products, and in terms of reproducibility and the homogeneity of the panel in the use of the descriptors.

Attribute list were selected by PCA analyses.

![Figure 3. Circle of correlation for gas chromatography-olfactometry descriptors on principal components 1 and 2 of *T. melanosporum* truffles. Sensory attributes (in grey) are projected as illustrative variables (Campo et al. 2017).](image)

![Figure 4. Tasting sheet for Black Truffle.](image)

CONCLUSIONS

Based on these indicators, the panel was deemed successfully trained, and it is used to support the scientific assays, to detect frauds in truffle products, to qualify truffles, truffled products and restaurants where the black truffle is used.

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References:

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