understanding of coffee's hedonic properties. Here we identified distinct receptor activity patterns elicited by single coffee KFOs or their combination, by expressing 391 recombinant human ORs together with olfactory signaling molecules in test cell systems, by means of odorant/receptor-induced cAMP signaling and GloSensor® luminescence measurements. An aroma-induced receptor activity pattern may serve as an objectified quality control parameter for coffee's complex hedonic percept. Further, we observed that individual OR haplotypes, defined by coding single nucleotide polymorphisms, could be activated by KFOs with different efficacies and potencies. A genetically encoded, individual odor perception, e.g. a specific anosmia, may underlie individual consumer food preferences.

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Classification of cocoa beans based on their fluorescent fingerprint to predict sensory poles of chocolates?

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Text Natures and quantities of aroma compounds present in chocolate vary according to several criteria such as the origin and the variety of cocoa beans, the cocoa post-harvest treatment and the process of manufacturing chocolate. These organoleptic qualities are evaluated through sensory evaluation. This method enable to define the sensory profiles of chocolates and then their belonging to a sensory pole. Could a classification of merchantable cocoa beans based on their fluorescent fingerprint be an alternative to predict sensory poles of chocolate? The objective of our study was to develop a chemometric model obtain with fluorescent fingerprint. To do this, 3D spectral analyses were performed at 20°C by Front Face Fluorescence Spectroscopy (FFFS) on refined cocoa powder samples (N=208). All of them were analyzed following similar operating conditions. At the same time, a sensory analysis was performed on the corresponding dark chocolates, prepared by and standardized and controlled fabrication process. The prediction model was developed on the 208 samples divided into the four sensory poles, and validated by a set of 50 samples. The prediction error was around 30%.
To interpret the data, preprocessing of signals and cleaning of non-informative areas (Rayleigh scattering) was carried out. Subsequently, a multiway exploratory analysis (PARAFAC) was carried out to determine the discriminant wavelengths in the distribution of classes. Principal Component Analysis (PCA) and Linear Discriminant Analysis (LDA) were performed on spectral data to identify sensory pole separation and to elaborate chemometric model. As a result, analysis of fluorescent fingerprints enabled to reach a reliable distribution of cocoa beans according to the sensory pole of chocolate.