



Work Package 10



Quality-Authenticity: microbiology, PCR, genotyping

Selection/evaluation of markers from the industrial perspective, which can be connected to specific quality/authenticity aspects of both raw materials/ingredients and corresponding finished products

RAW MATERIAL/ INGREDIENT/PRODUCT	TYPE OF RISK (fraud, sophistication, contamination)	POSSIBLE TYPE OF ANALYSIS	MOLECULAR MARKERS
Coffee	Blending with different coffee species	PCR genotyping; Real time-PCR (allele-specific probes)	SNPs, cpDNA, sequencing
Cocoa	Quality of fermentation	PCR-DGGE, PCR-RAPD of fermenting bacteria	16S and 23S rDNA
Olive oil	Adulteration/substitution with different species	barcoding, PCR amplification and High Resolution Melting (HRM) analysis, SSCP	cpDNA (rbcL)
	Compliance with PDO, mislabeling	genotyping with molecular markers,, PCR-RFLP, sequencing	SNPs, microsatellites
	Mislabeling	PCR-FINS; PCR genotyping; Real time-PCR (allele-specific probes); barcoding	Sequencing, SNPs, mtDNA (COX1, 16S rDNA)
	Adulteration/substitution with different species	PCR-FINS; PCR genotyping; Real time-PCR (allele-specific probes); barcoding	Sequencing, SNPs, mtDNA (COX1, 16S rDNA, CYTB)
	Addition of other cheaper fishes	PCR-FINS; PCR genotyping, RT-PCR (allele-specific probes)	Sequencing, SNPs
	Geographical origin	PCR genotyping, Real time-PCR (allele-specific probes)	SNPs

Meat	Mislabeled	PCR-FINS; PCR genotyping, Real time-PCR (allele-specific probes); barcoding	Sequencing, SNPs, mtDNA
	Adulteration/substitution with different species	PCR-FINS; PCR genotyping; Real time-PCR (allele-specific probes); barcoding	Sequencing, SNPs, mtDNA
	Addition of other cheaper meats	PCR-FINS; PCR genotyping; Real time-PCR (allele-specific probes)	Sequencing, SNPs
	Geographical origin of fermented meat products, and compliance with PDO	PCR genotyping of bacterial communities with PCR-DGGE or PCR-RAPD, sequencing	DGGE or Sequencing 16S rDNA
	Compliance with Halal or Kosher practices	Barcoding, Real time-PCR (allele specific probes)	mtDNA (CYTB, COX1, 12S rDNA)
Milk and Derivatives; Cheeses	Adulteration/substitution with different species	Primer specific-RT PCR; barcoding	DNA sequence; mtDNA (CYTB, 12S rDNA) or casein
	Substitution of PDO cheese with others	PCR genotyping, Real time-PCR (allele-specific probes) (when PDO based on breeds)	SNPs
	Geographical origin of fermented milk products, and compliance with PDO	PCR genotyping of bacterial communities with PCR-DGGE or PCR-RAPD, sequencing	DGGE or Sequencing 16S rDNA
Cereals	Mislabeled of species (coeliac disease)	Real time-PCR	nuclear genes for rDNA
	Adulteration with different species or cultivars in PDO products	genotyping for cultivar identification	microsatellites, SNPs in gliadin genes, other specific genes