Short description of project funded by CORE Organic II partners in the first call of CORE Organic II

Project short name and title

AuthenticFood: Fast methods for authentication of organic plant based foods

Project summary

The market shares for organic products have continuously grown over the last decade. Organic products are generally sold at premium prices compared to conventional ones. Recently, there have been a growing number of reported cases, where conventional food products were mislabelled and fraudulently sold as organic. Consequently, there is an urgent need for development and validation of analytical methods, which allow discrimination between organic and conventional food products. These tools will be essential remedies for certification and inspection bodies in order to strengthen the credibility of the growing organic sector within EU. During the last decade several analytical methods have been suggested for authentication of organic crops, but a comprehensive evaluation of the methodologies has not yet been performed. In AuthenticFood, several analytical methods will be further developed and evaluated for organic authentication by 16 partners from 11 European countries, encompassing agronomists, analytical chemists as well as inspection and certification bodies, with significant expertise in authentication and organic agriculture.

Aim, objectives and hypotheses

The objective of *AuthenticFood* is to test a portfolio of the most promising analytical methods, markers and concepts for their ability to authenticate organic products. This project aims to provide the tools that will ultimately give confidence to consumers by revealing fraudulent substitution of organic with conventionally cultivated products and consequently to promote organic food through assured authenticity.

In order to document the authenticity of organic food products, a wide range of different analytical methods and protocols will be applied on samples, obtained both at the field and farm level and as processed plant based food products. The analytical methods have been selected according to the following basic criteria: *i)* previously documented in the scientific literature as promising tools for discrimination between organic and conventional samples *ii*) can potentially be developed into a fast screening procedure and *iii)* the analytical costs per sample are low to moderate.

The results of the measurements will be evaluated and continuously discussed with a range of experienced control laboratories as well as inspection and certification bodies for their relevance in practical authentication of organic foods. The following main hypotheses (h) will be tested:

h1. Organic plant samples can be authenticated at the field and farm levels under conditions where bias is introduced by differences caused by *e.g.* farming practise, geographical location, plant cultivar and growth season.
h2. Authentication of the organic origin is maintained in processed cereal and vegetable samples when

data from suitable analytical methods are applied and combined.

h3. The validated methods can be implemented by relevant stakeholders such as inspection and certification bodies.

Expected results and their impact/application

We expect to obtain confirmation on the applicability of multi-elemental analysis, stable isotope analysis, metabolomics and pesticide screening procedures for discriminating between organic and conventional vegetables and cereals. Moreover, we anticipate that the development of novel techniques, including compound-specific analysis of isotopes will yield a more robust and reliable discrimination than previously seen. Ultimately, all of these new approaches can be used to verify the authenticity of organically labelled products on sale in the retail market or at any point in the supply chain. Thereby trustworthiness of organic produce is retained which will strongly support the sustainability of the organic sector in EU.

Coordinator, partners and countries involved

		Acronym	Organisation	Country	Contact person
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16	Partner	DVFA	Danish Veterinary and Food Administration	Denmark	Head of section Erik Andersen