

COST Action no FA1101.

Omics Technologies for Crop Improvement, Traceability, Determination of Authenticity, Adulteration and Origin in Saffron (SAFFRONOMICS)

2009 | 2013

Objectives

- To strength the network of collaborative research on the structural organization of Saffron genome, DNA fingerprinting, chemical fingerprinting, proteomics, transcriptomics, and metabolomics of this crop.
- To define a common strategy to the final goal of preserving *Crocus* biodiversity, to carry out genetic improvement and to protect quality, sustainability, and safety of production of saffron in Europe. The maximum achievement (long term): Adulteration-free condition for saffron industry.

Main Achievements

- Further advance in the genetic characterization, estimation of biodiversity and development of molecular and chemical descriptors for Saffron and *Crocus* spp. at the CROCUSBANK World Saffron and *Crocus* Collection (www.crocusbank.org).
- To evaluate the available genomic tools and modern genetic and breeding approaches looking for crop improvement in saffron and ornamental crocuses.
- To initiate the application of omics techniques to detect new-generation biological adulterants in saffron, based on DNA and chemical fingerprinting.
- To initiate genomic typing of Saffron in PDOs and recognized areas, as tools for traceability applications, determination of authenticity, and for fighting against fraud of origin, labelling and marketing in this HVAP, the highest-priced European food product.

www.cost.eu/fa



Food and Agriculture (FA)

Participating countries

AT, BE, CH, CZ, DE, DK, EL, ES, FR, HU, IL, IT, MK, NL, UK, PT

TR, CR, SW (intention)

(plus 9 Non-COST participants)

Contact details

Chair of the Action

Maria Tsimidou, professor

Aristotle Univ of Thessaloniki, GR

Science Officer

Science Officer Food and Agriculture

COST Office

ioanna.stavridou@cost.eu

Website

www.saffronomics.org



COST is supported
by the EU RTD
Framework Programme



ESF provides the COST
Office through a European
Commission contract



Working Group activities

Working Group 1. Genetics, Genomics &

Transcriptomics

- To further research on the degree of genetic diversity that exists within Saffron local varieties by mapping (physical, large fragments) and use of Molecular Markers (Nuclear genome ESTs, SNP, AFLPs, 454 cDNA sequencing as well as Plastid Genome Markers).
- To clarify the genetic relationships among geographic or genetic groups both cultivated and wild (heterozygosis of varieties; identification of genetic bottlenecks, origin of *C. sativus*).

Working Group 2. Phytochemistry &

Metabolomics

- Revisiting and developing analytical methods and techniques to serve the Action aims: Traceability, Determination of Authenticity, Adulteration and Origin in Saffron
- To build a data bank recording all types of information obtained
- Further characterization of the transcriptome of Saffron stigmas

Working Group 3 Integration of Molecular and Phytochemical fingerprinting for breeding, traceability, and authenticity

- To advance in combining DNA markers, chemical indices from powerful techniques (NMR, FT-IR, RAMAN, MS etc) with the aid of chemometrics to discriminate right from wrong.

Working Group 4. Dissemination

- Keep actively useful the SAFFRONOMICS webpage and the digital Newsletter .
- Involve more scientific groups within and among member states in EU
- Familiarize producers and consumers with saffron (from farm to fork)
- Train the next generation in saffron properties (pupils, students, young consumers)

Industry participation

THIERCELIN

Jean M. Thiercelin
President
France (FR)
ean@thiercelin.com
<http://www.thiercelin.com/>

Uttam Singh Manohar Singh

(Baby Brand Saffron),
Harpreet Singh Chhabra
President
India (IN)
info@babysaffron.com
<http://www.babysaffron.com/>

Vanilla, Saffron Imports

Mr Juan J. San Mames
President,
United States (US)
saffron@saffron.com
<http://www.saffron.com/>

Agelos Markou, General manager
KROCUS KOZANIS products S.A.
Karyditsa Kozani 50100 GR
amarkou@krocuskozanis.com
www.krocuskozanis.com



COST is supported
by the EU RTD
Framework Programme



ESF provides the COST
Office through a European
Commission contract