Greek saffron = Krokos Kozanis

- In Greece is cultivated only in the area of Kozani, northwest part of the country.
- Krokos Kozanis means saffron from kozani in Greek and has been registered in Europe as a PDO product since 1998.
**Greek saffron = Krokos Kozanis**

- **Organic saffron in stigmas**
- **Glass jar stigmas 1 gr**
- **Powder in sachets**

**Basic points for saffron**

- Iran – India – Greece – Morocco – Afghanistan – Spain, Italy, France, USA, Turkey, Yemen, New Zealand, China

- Spain conquers 60-70% of global trade
- We used to sell all of our crop in Spanish traders, now we have swift in branding, establishing our own sales networks

- Cooperative de safran – 800 families – we are the growers

- Guarantee high quality, sustainability, no adulteration, no mixing of other origins.
- Cooperative has developed best practices over the years. Small and concentrated cultivation, full control of crop, one quality category.

- The secret of high saffron quality is the **drying process**.
How we compare with competition?

Quality analysis ISO 3632 TS
How we compare with competition?

Practical method
How we compare with competition?
(Dr. Abdulaef 2005)

Table 1
HPLC quantitative analyzes of 10 saffron metabolites from 11 different saffron sources
Compound Sample (mg/g of stigmas)

| Compound          | Greece      | India       | New Zealand | Spain        | France       | Azerbaijan | Italy       | Turkey      | Iran         | Sigma        | China        |
|-------------------|-------------|-------------|-------------|--------------|--------------|------------|-------------|-------------|--------------|--------------|--------------|--------------|
| Picrocrocin       | 5.95 ± 0.053| 7.87 ± 0.064| 7.90 ± 0.578| 8.14 ± 0.407 | 5.97 ± 0.119 | 3.34 ± 0.223| 5.80 ± 0.311| 5.67 ± 0.132| 3.69 ± 0.008 | 0.83 ± 0.068 | 0.53 ± 0.027 |
| HTCC              | 0.17 ± 0.100| 0.32 ± 0.007| 0.28 ± 0.010| 0.13 ± 0.010 | 0.21 ± 0.008 | 0.13 ± 0.004| 0.07 ± 0.003 | 0.42 ± 0.025 | 0.20 ± 0.003 | 0.02 ± 0.004 | 0.03 ± 0.002 |
| 3-Gentiobiosylkaempferol | 0.14 ± 0.005| 0.16 ± 0.006| nd          | nd           | 0.25 ± 0.031 | 0.04 ± 0.003| 0.04 ± 0.004 | 0.07 ± 0.004 | 0.19 ± 0.007 | 0.04 ± 0.003 | 0.03 ± 0.003 |
| Safranal          | 1.29 ± 0.051| 1.24 ± 0.084| 0.47 ± 0.067| 0.88 ± 0.125 | 0.81 ± 0.049 | 0.98 ± 0.059| 0.53 ± 0.049 | 0.84 ± 0.093 | 0.65 ± 0.064 | 0.35 ± 0.054 | 0.22 ± 0.050 |
| trans-crocin      | 40.77 ± 0.420| 37.54 ± 0.001| 41.21 ± 0.197| 38.41 ± 0.580| 38.43 ± 0.188| 39.08 ± 1.697| 38.25 ± 2.062| 36.35 ± 2.160| 38.41 ± 0.685| 6.53 ± 0.091| 6.29 ± 0.001 |
| trans-crocin      | 30.36 ± 0.001| 22.13 ± 0.001| 31.26 ± 0.457| 24.43 ± 0.108| 27.74 ± 0.001| 27.25 ± 0.001| 28.28 ± 0.355| 25.32 ± 1.096| 23.58 ± 1.371| 4.00 ± 0.001| 2.44 ± 0.001 |
| trans-crocin      | 2.16 ± 0.001| 1.01 ± 0.001| 1.32 ± 0.001| 0.92 ± 0.001| 1.27 ± 0.001| 1.16 ± 0.001| 0.69 ± 0.001| 0.58 ± 0.001| 1.15 ± 0.001| 0.11 ± 0.001| >0.0 ± 0.001|
| cis-crocin        | 10.14 ± 0.120| 9.10 ± 0.001| 0.31 ± 0.001| 5.76 ± 0.001| 5.89 ± 0.001| 7.49 ± 0.001| 2.31 ± 0.001| 5.21 ± 0.001| 4.73 ± 0.001| 0.53 ± 0.001| 0.31 ± 0.001|
| trans-crocin      | 2.84 ± 0.001| 2.61 ± 0.001| 0.05 ± 0.001| 2.12 ± 0.001| 1.72 ± 0.001| 2.09 ± 0.001| 0.64 ± 0.001| 1.32 ± 0.001| 1.33 ± 0.001| 0.03 ± 0.001| >0.0 ± 0.001|
| cis-crocin        | 0.23 ± 0.001| 3.29 ± 0.001| 0.46 ± 0.001| 2.21 ± 0.001| >0.00 ± 0.001| 0.09 ± 0.001| 1.85 ± 0.001| 0.95 ± 0.001| 0.12 ± 0.001| nd           | nd           |
| Total             | 94.06 ± 0.07| 85.25 ± 0.02| 83.27 ± 0.13| 83.02 ± 0.12| 82.28 ± 0.04| 81.65 ± 0.20| 78.45 ± 0.28| 76.72 ± 0.35| 74.04 ± 0.21| 12.43 ± 0.02| 9.86 ± 0.01 |

Instrumental conditions as described in Fig. 1. Results are expressed as means ± standard deviations
Nd = not detected.
Beneficial attributes of saffron

Oxidation – free radicals
Anti oxidant properties

• Crocine – picrocrocine – safranal - Carotenoids – Strong antioxidants – the only in nature 100% water soluble

• Absorbed in blood instead of lymphatic system
• Stays up to 26 hours in body
• Anti oxidant power 77 according to ORAC

• Oxidation is the cause of more than 160 severe deceases for humans even ageing

• Considered to possess strong antioxidant properties related with anticonvulsive, digestive, aphrodisiac, antitumor, pain, cramps or spasms, flatulence, induction perspiration, promotion of menstrual flow, expectorant, relaxant, sleep induction, digestive disorders.
ANTIOXIDANT PROPERTY OF SAFFRON IN MAN
SK Verma, A Bordia
Indian Journal of Medical Science

In the present study there has been a definite decrease in LOS during saffron administration in man. The advantage of this widely used spice, used in traditional medicine as a metabolic tonic is that it can be safely consumed by all. Interestingly, there is only 8mg carotenoids in 100mg of saffron and even in this dose the spice has lowered LOS quite significantly. It is therefore possible that either saffron contains some other elements which potentiate the LOS lowering effect of the carotenoids present, or the carotenoids in saffron are better absorbed and assimilated in comparison to carotenoids from other sources.
Crocus sativus L. is a plant cultivated in various parts of the world. Its involvement in learning and memory processes has been proposed. [...] The present study was designed to investigate in the rat the effects of crocins on recognition and spatial memory. [...] The present results support and extend the enhancing effects of crocins on memory and, then, to our knowledge, for the first time, demonstrate its implication in the mechanisms underlying recognition and spatial memory.

- Crocus sativus L. extracts antagonize memory impairments in different behavioural tasks in the rat
Department of Pharmacology, School of Medicine, University of Thessaly, Greece
STUDIES ON SAFFRON

- Effect of crocin on experimental atherosclerosis in quails and its mechanisms
  Department of Pharmacology, China Pharmaceutical University, Nanjing 210009, PR China

- Inhibitory effect of crocetin on intracellular nucleic acid and protein synthesis in malignant cells
  Department of Biological Sciences, Rutgers University, Newark, NJ (USA) and Laboratory of Genome Biochemistry, Institute of Botany, Azerbaijan Academy of Sciences, Baku (Azerbaijan).

- Anticonvulsant evaluation of safranal and crocin from Crocus sativus in mice
  Pharmaceutical Research Center, Faculty of Pharmacy, Mashad University of Medical Sciences, Mashhad, Iran

- Mechanism of hypolipidemic effect of crocin in rats: Crocin inhibits pancreatic lipase
  China Pharmaceutical University, 24 Tongjiaxiang Street, Nanjing, Jiangsu 210009, China

- Neuroprotection by crocetin in a hemi-parkinsonian rat model
  Neurotoxicology Laboratory, Department of Medical Elementology and Toxicology, Jamia Hamdard (Hamdard University), Hamdard Nagar, New Delhi-110062, India
HPLC quantification of major active components from 11 different saffron (Crocus sativus L.) sources
Departamento de Farmacia, Facultad de Química, Universidad Nacional Autónoma de México, 04510 DF, Mexico City, Mexico

Eleven certified saffron samples (Crocus sativus L.), from Azerbaijan, China, Greece, France, India, Iran, Italy, New Zealand, Spain, Turkey and the Sigma Chemical Company, were analyzed by using an HPLC photodiode array detection method. This analysis quantified the 10 major saffron compounds in each sample and their concentration was analyzed at three different wavelengths. […] Results indicated that the Greek, Indian, New Zealand, and Spanish saffron extracts possessed the highest concentrations of water-soluble glycosidic carotenoids (P8.0%) suggesting that they could be a good source of this type of metabolites for further biological evaluation.
WHY GREEK RED SAFFRON (Krocus Kozanis)?

The entire quantity of Krocus Kozanis belongs to category I according to the ISO evaluation. It is produced with absence of insecticides and the 40% of this production is organically certified.

Kozanis’ region soil and climatic conditions have been also shown to affect positively the saffron (fresh stigmas) quality.

Crucial parameters for the quality of saffron are also the methods of harvesting, selection and drying of saffron stigmas. The Krocus Kozanis growers are educated on these methods by the University of Thessaloniki (Department of Food Chemistry) in order to maintain the high quality characteristics of the Greek Red Saffron. Korres encourages the Krocus Growers continuous improvement of production methods as well as supports the scientific research by closely working with several universities.
• **Basic points for Greek saffron herbal tea line**

• 7 organic and 7 non organic herbal teas with Greek Red saffron (global innovation) in order to offer saffron daily.

• Each formula contains from 3 to 9 different herbs besides saffron.

• All formulas gluten free, 5 formulas caffeine free (except black and green tea), 2 formulas suitable for homeopathic diet.

• It is a unique gourmet product offering high added value and sensual satisfaction to consumers. Consumed hot or cold.

• Attracts new customers for the retailer, increasing turn over and profit margin.

• On May 2010 5 flavours awarded a prize at ITQI superior Taste award and Great Taste award in London - UK
Organic & Conventional Herbal Teas with Greek red saffron & selected herbs

1. Herbal Tea With Sage, Lemon Verbena and Saffron,
an indulgent match of hand-picked mountain herbs and fine floral scents in a unique combination

Ingredients: Rooibos Tea, Sage, Peppermint, Lemon Verbena, Lemonbalm, Lemongrass, Fennel, Anise, Thyme, Rosemary, Greek Red Saffron

2. Herbal Tea with Honey, Orange & Saffron
the saffron growers welcome the guests at their village Krokos in Kozani, with this tasteful beverage

Ingredients: Apple, Rosehip, Orange Leaves, Orange Peel, Natural Flavours, Lemon Peel, Sweet Blackberry Leaves, Honey Granules, Greek Red Saffron

3. Herbal Tea with, Rosemary, Thyme & Saffron
colours of Greek yards and flavours of the Aegean summer, concentrated in a unique taste

Ingredients: Spearmint, Orange Leaves, Aniseed, Fennel, Rosemary Leaves, Hibiscus, Thyme, Liquorice Root, Oregano, Greek Red Saffron
4. Black Tea with Lemon, Spearmint and Saffron
consumed hot or cold, as a welcome drink at the bazaars of the orient

Ingredients: Black Tea, Spearmint, Lemon Peel, Natural Flavours, Greek Red Saffron

5. Herbal Tea with Cinnamon, Clove & Saffron
for the winter cold we combined the flavour of sweet fruits with the scent of exotic spices

Ingredients: Orange Peel, Hibiscus, Cinnamon, Apple, Clove, Natural Flavours, Greek Red Saffron

6. Herbal Tea with Mint, Lemongrass & Saffron
pure fresh lemon & cooling mint, perfect for hot summer days

Ingredients: Peppermint, Lemongrass, Spearmint Leaves, Liquorice Root, Lemon-myrtle, Greek Red Saffron

7. Green Tea with Ginger, Liquorice & Saffron
an aromatic blend of ginger roots & green tea, the Asian remedy for vitality & well-being

Ingredients: Green Tea, Ginger Root, Liquorice Root, Natural Flavour (Orange), Spearmint Leaves, Greek Red Saffron
Organic Herbal tea with Red Greek saffron
Package , foil, sachet, leaflet

box
foil
Filter paper

Informative leaflet included in the box
In addition to our proposal for the tea line, we also propose the special set which contains 5 herbal teas and a package of saffron as spice.

Special set of 5 Herbal teas with Greek saffron and an exquisite (drawer like) plexi glass package of 0,7 gr saffron in stigmas as spice
TARGETS – USA

• Assignment of main importer – Loumidis SA – New York

• Market Research - Select channels of distribution
  (Retail- sm – Food sector- organic stores – pharmacies)

• Business plan- Support of European program

• Brand awareness – Krokos Kozanis

• Mutual growth and profitability with business partner

• Sustainable growth for producers