

Royal Saffron of Odzun

Spice Project of Armenia

HAM Ltd.Co, v.Odzun, Armenia 2019, August-November

An Introduction

The world's annual saffron production is estimated around 300 tons per year (Iran produces 76% of total) and also saffron is considered to be the most expensive spice in the world; hence, there are efforts for its artificial production or defraud. Therefore, the quality conservation of saffron needs to certify in the international trade market following international ISO or the Food and Drug Administration (FDA) criteria and standards.

Considering that culinary applications of saffron are dominant, there are several trendy alternative uses of saffron: cosmetic, medicine and textile. Like cosmetic and fragrant applications of the spice go back thousands of years, as well as its nutraceutical properties used in ancient and medieval traditional medicine.

The major trend is the booming of wellness and nutraceutical industry in Western Europe and USA, as well as traditional Chinese medicine. Those who use saffron for wellness and medicinal properties, assigning the importance of chemical compounds such as safranal, crocin, picrocrocin and crocetin. Safranal is the key chemical compound associated with saffron aroma, so these industries may target saffron with high levels of safranal.

Although the coloring properties of saffron remain sought after in the textile industry, this use is declining due to the associated high cost and less expensive alternatives.

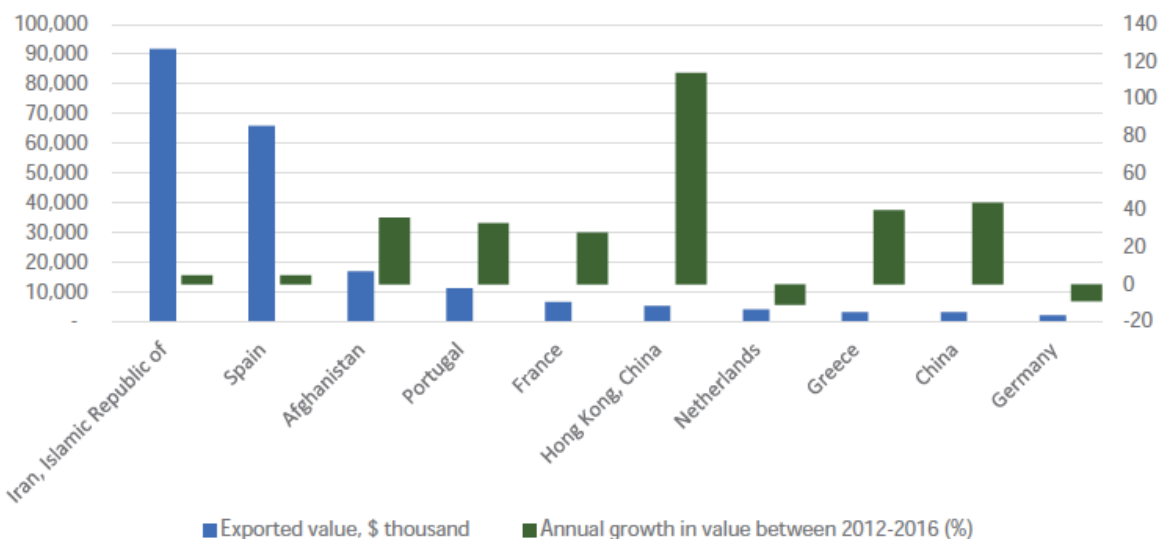
Branding the Agriculture and enhancing rural livelihood development.

Its already clear that Saffron production is labor-intensive (about 150.000 flowers may generate 1 kg of saffron, and that's requires about 40 hour of labor) that's why it has shifted away from developed countries. But the value is the quality of saffron that relay to several factors: high quality of corms, soil appropriate condition, photosynthetic active radiation and sunshine period, climatic specify and good cultivation and harvesting techniques, threads drying technology, etc. Much of this value is captured by major re-exporting nations who excel in processing, packaging and branding activities.

But the key to triggering the “red gold” initiative in Armenia is developing a brand identity based on

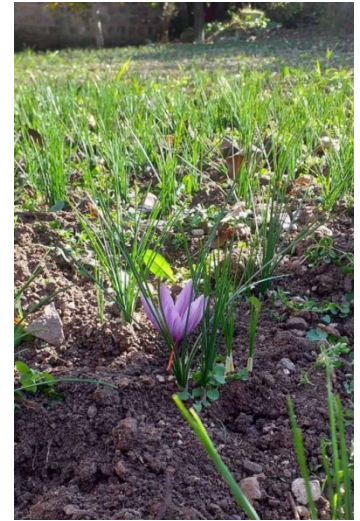
consistent high quality and unique taste and aroma. Armenia has a genuine opportunity to capitalize on this industry momentum and become a major player in High-Quality Rare saffron production and export.

Figure 1 World's top exporters of saffron, 2016



Source: ITC Trade Map.

¹ International Trade Centre (2018). Afghanistan's National Export Strategy 2018-2022, Saffron Sector. Geneva.



Where is the best saffron in the world?

”Best” for any cooking ingredient is an extremely subjective term at best. Fanatical following cannot be a measure of superiority.

What would one gain if told that X variety is the best - costing USD145 per gram? Buy it? Or look for something more economical?

Some say Kashmiri, some say Iranian, some say Afghani, some Turkish, yet others say Spanish.

Below is the comparison table of most popular and well known quality saffron brands that you can compare by scoring that includes aggregation of Organoleptic, Physical, Chemical composition as well as market price.



Trademark/Company	Description	Characteristic by ISO 3632	Quality Evaluation	Amazon Price, 3 gram	Organoleptic & Ph-Ch Parameters Scoring/Rating
Kiva Saffron	Highest Rated La Mancha Spanish	Category 1 / 200+ grade	has the mildest aroma but good color	\$18.50	6
Mehr Saffron	Iranian Premium All Red Saffron	Category 1 / 270+ Superior Quality	good aroma and color, but not consistent size of thread	\$25.97	5
Zaran Saffron	Iranian “Super Negin” threads All-Red Saffron	Lab Tested with Grade A+, Color Reading 259+	good aroma and color, but not consistent quality	\$28.49	4
Kasmiri Saffron	Indian read		is a bit milder than the Iranian one but has stronger color	\$28.50	3
Rumi Saffron	Afghani Dark Read	Category 1 / 250+ Grade	good aroma and color, consistent quality, medium pleasure	\$39.49	2
Royal Saffron of Odzun	Dark Read Mountain Wild Crafted Saffron	Category 1 / 290+ Exceptionally Rare Superior Quality	has strong aroma, good color, consistent quality and only negin (top part of thread) part.	\$ 185.32	1

Evaluation Notes

The Iranian has good aroma and color, but not consistent quality.

The Turkish variety has strong aroma but weaker color (when dissolved in warm water or milk).

The Kashmiri one is a bit milder than the Iranian one but has stronger color.

The Spanish one has the mildest aroma but good color.

Royal Saffron of Odzun has strong aroma, good color, consistent quality and only negin (top part of thread) part. These parts is the best portions due to the fact that they contain all of the stigma's stores of picrocin, safranal and crocin, the organic chemical compounds that make saffron such a unique ingredient. Picrocin is the compound that gives saffron its bitter taste. Safranal is compound responsible for saffron's floral aroma and Crocin is responsible for coloring. And one big advantage of this saffron is that its wild crafted and naturally dried under ceramic roof in open area dryer.

All saffron comes in multiple grades - from individual loose strands (costliest), to bunches (medium price), to more dust than strands (medium price), less aroma more dust (cheap) and finally natural faux saffron with genuine saffron essence (yellowish strands; cheapest).

Not everyone has access to all the different varieties and grades. How sure is one regarding the source and grade that have? Sellers are sharp, and eulogizing whatever they have is their pushing strategy. If they sense you know a bit about the subject, they quickly move to obfuscate to make you doubt your knowledge!

Technical Specification ROYAL SAFFRON OF ODZUN

PROPERTY	Measurement	Royal Saffron of Odzun
Chemical Specification		
Safranal (aroma)	strength 330 nm	45
Crocin (coloring)	strength 430 nm	230
Picrocrocin (flavour)	strength 257 nm	85
Physical Specification		
Artificial colorant	existence	absence
Free caustic	% max	0.05
Moisture and volatile matter	% max	10
Total ash on dry matters	% max	5.5
Acid insoluble ash on dry matters	% max	0.5
Soluble extract in cold water, on dry matter	% max	58
Foreign matters	% max	0.1
Insects damage	% max	0
Extraneous matter	% max	0
Microbiology		
Aflatoxin B1	< 5 micrograms/Kg	absence
Aflatoxin (B1+B2; G1+G2)	< 10 micrograms/Kg	absence
Salmonella	Absence in 25 g	absence
Echinicia coli	< 10 cfu/g	0.1
Yeast and Molds	< 10 ⁴ cfu/g	absence

TASTE PROFILE

Description	Royal Saffron of Odzun	Face Saffron from Bazar
Bite note	Floral	Bitter
Mouth pellet	Sweet	Plastic
Main taste	Earthy	Metallic taste
Main flavor	Pungent Longer stay Flavor	Lack of flavor



European Spice Association Quality Minima set for saffron and saffron powder

Parameter	S affron whole	Powder
Extraneous matter	Not more than 1.0% by weight	Not more than 1.0% by weight
Moisture content	Not more than 12.0% by weight	Not more than 10.0% by weight
Volatile oil	No value given	No value given
Ash content	Not more than 8.0% by weight	Not more than 8.0% by weight
Acid-insoluble ash	Not more than 1.0% by weight	Not more than 1.5% by weight
Water activity (Aw)	Not more than 0.65	Not more than 65%

Source: European Spice Association (2018). *Quality Minima Document*.

References of Quality Evaluation Methodology

Parameter	Method	Principle
Moisture	ISO 3632-2	Gravimetry
Total Ash	ISO 928	Gravimetry
Acid Insoluble Ash	ISO 3632-2 ISO 930	Gravimetry
Soluble extract in cold water	ISO 941 ISO 3632-2	Solubility
Flavour strength (expressed as picrocrocin) A ^{1%} 257 nm	ISO 3632-2	Absorbance
Aroma strength (expressed as safranal) A ^{1%} 330 nm	ISO 3632-2	Absorbance
Colouring strength (expressed as crocin) A ^{1%} 440 nm	ISO 3632-2	Absorbance
Artificial colorants	ISO 3632-2	Chromatography
Extraneous Matter	ISO 927 & ISO 3632-2	Visual Examination
Foreign Matter	ISO 927 & ISO 3632-2	Visual Examination
Insect Damage	ISO 927	Visual Examination
Insects/Excreta/Insect Fragments	ISO 927	Visual Examination

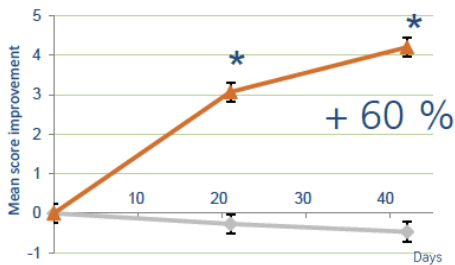
Medicinal Benefits of Saffron

Sedative/sleep aid	Digestive aid	Spasm reducer	Pain reliever
Anti-inflammatory	Cholesterol reducer	Antioxidant	Eye health
Anti-hypertension	Cancer prevention	Treatment of asthma	Treatment of anaemia
Fever reducer	Treatment of impotence and infertility	Treatment of respiratory disease	Treatment of neurodegenerative diseases
Anti-anxiety	Anti-depressant	Treatment of arthritis	Treatment of premenstrual syndrome
Heart attack prevention	Ca rdiovascular health	Blood pr essure reducer	Appeti te suppressant

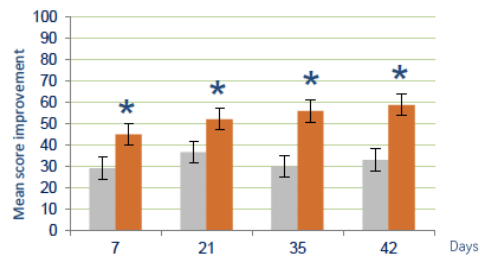
*Some of the above claims are backed by research studies while others are less supported

Saffron extract benefits according to SaffrActiv (<http://greenplantsextracts.com/>)

► Improvement of global sleep quality



► Improvement of fatigue condition



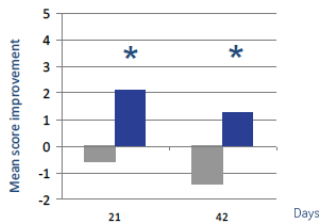
► Improvement of mood

► Improvement of mental acuity

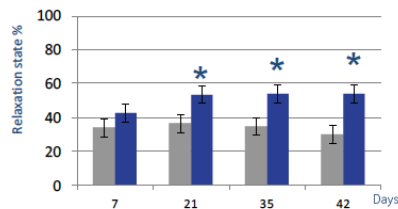
— Placebo
 — Saffr'Activ® (30 mg/day)
 * Significant difference p<0.05

Saffron Benefits to Mental Balance

► Reduction of anxiety



► Improvement of relaxation state



Minerals and Vitamin values per 100 g of saffron

Nutrient	Unit	Value per 100g	Nutrient	Unit	Value per 100g
Minerals			Vitamins		
Calcium, Ca	mg	111	Vitamin C, total ascorbic acid	mg	80.8
Iron, Fe	mg	11.1	Thiamin	mg	0.115
Magnesium, Mg	mg	264	Riboflavin	mg	0.267
Phosphorus, P	mg	252	Niacin	mg	1.46
Potassium, K	mg	1724	Vitamin B-6	mg	1.01
Sodium, Na	mg	148	Folate, DFE	µg	93
Zinc, Zn	mg	1.09	Vitamin A, RAE	µg	27
			Vitamin A, IU	IU	530

Source: United States Department of Agriculture Agricultural Research Service (2018). *National Nutrient Database for Standard Reference Legacy Release – 02037, Spices, Saffron.*