

Rosa Damascena - Anatolian Rose Production

Written in 2001/2002

By Butch Owen - past owner of

Appalachian Valley Natural Products

Part 1

The information below is the opinion of this writer. It's not a research project so it contains no references. I don't have the time to do such a project but when/if I do have the time, I will include the appropriate references. In the meantime, folks can accept or reject this information but if they want to challenge it, the monkey is on their backs to disprove what I have written. I have a fair amount of knowledge of Rose Otto production in Turkey, I've been an avid student of history for over 40 years and Turkish history over 20 years, I've visited the Isparta Rose Fields for the last five years and closely observed and studied the entire scope of Rose Otto production. Some of the information presented here conflicts with rumors concerning Rose Otto found in some aromatherapy reference books and with data presented as marketing information by some essential oil dealers. It's not my intent to be ornary or disagreeable but rather to tell it like it is - I don't like we wish it was. There is no information contained herein that cannot be confirmed by those with inquiring minds. If your idea of research is asking questions to your favorite EO dealer or reading your favorite EO reference manual, then you do not have an inquiring mind - you only have a desire to acquire easily-obtained information and you might remain in the dark. It is from these sources that the rumors and misinformation begins and is perpetuated.

I will start by saying that Rosa damascena (Damask Rose) can be found growing wild and/or cultivated in many places on Earth - but there are only two locations where growing conditions are such that we can call them ideal - the Isparta Valley of Turkey and the Kazanluk Valley of Bulgaria. I have an acquaintance who experimented with commercial cultivation of Rosa damascena in Zambia - the results were less than desirable. Two years ago, I exported over one metric ton of Rosa damascena rootstock and cuttings to a USDA project in Madagascar. The latest information I've received on that project indicates that even though the recipients of those rootstocks and cuttings used the correct procedures in planting and maintaining the plants, the results are not very favorable and we shouldn't be looking for commercially produced Rose Otto from Madagascar - or from anywhere else for that matter. If you don't have large fields of Roses in an area, its not smart to build a Rose distillation facility there.

I'm not going to say that those folks putting out bad info are trying to deceive us - though some of them might be if they think it will make their product look superior to that of other sellers. Most folks just don't understand the realities of the operation - they go by what they have read or have been told and they grasp that portion of the false information that will support their position when they tell the stories. I'm happy to tell it like it is - I'm happy to educate folks on Rose Otto production. I don't depend on others for information on Rose Otto as I've been living the reality down where the rubber meets the road for a long time.

An example of misinformation: One of the industry publications recently had a story saying that Rosa damascena doesn't usually grow above 500 meters .. that is wrong. Isparta is at 900 plus meters - that's why the Roses grow so well there. Chris Ziegler recently harvested her Rosa damascena and made Rose Petal Jam .. Chris lived outside Denver, Colorado. The altitude of Denver is a bit more than 500 meters - its closer to 1,400 meters.

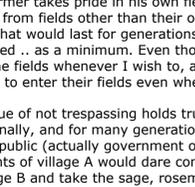


Photo 01

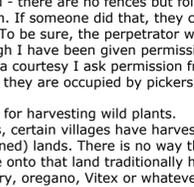


Photo 02

Photo 01: This trip began at the General Directorate of the Turkish Rose Growers' Association. The General Director, Sinasi Olgun, is a long-time friend of mine, a Haji and a kind gentleman. Butch Owen is standing on the left.

Photo 02: Sinasi in a Rose field with the owner of the field. Each farmer owns his own field(s). There are no particular sizes to the fields since one farmer might be able to dedicate more land to Roses than can another farmer. The fields are separated by a road or some other boundary. It is NOT a Co-op cultivation effort, it is a Co-op in that the farmers sell their Rose Blossoms to a central pick-up point belonging to the distilleries.

There are no rules on disposition of Roses. The three largest private distilleries in Isparta buy X kilos of Roses before the season begins - they pay a considerably lower price but some farmers are willing to take advance payment even if its less than they can get later from the Rose Growers Association (RGA). If a farmer has been prepaid for his Roses, he will go to the collection point for that distillery. The farmers have lived with the system for years and in addition to prices being a driver, personalities and family loyalties are important.

The RGA advises farmers in advance how many kilos of Rose Otto they intend to produce that year so the farmers have a fair idea of where their Roses will be sold. Also, the RGA buys a large volume of Roses for the production of Rose Concrete - they sell all they can produce to French perfumeries and other French companies.

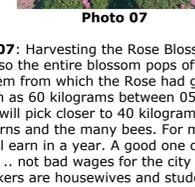


Photo 03

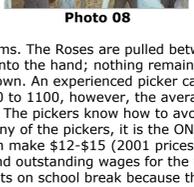


Photo 04

Photo 03: Butch in the Isparta Rose fields. The harvest begins before sunrise and stops around 1100. The farmers then head for a check-in station, get their harvest weighed and draw a chit for that day's turn-in of Roses. The distilleries stop buying Roses at 1200. They will distil all Roses turned in on that day - distillation continues into the night.

Each farmer takes pride in his own field - there are no fences but folks don't harvest from fields other than their own. If someone did that, they could start a feud that would last for generations. To be sure, the perpetrator would be ostracized .. as a minimum. Even though I have been given permission to enter the fields whenever I wish to, as a courtesy I ask permission from the farmers to enter their fields even when they are occupied by pickers.

This issue of not trespassing holds true for harvesting wild plants. Traditionally, and for many generations, certain villages have harvested certain public (actually government owned) lands. There is no way the occupants of village A would dare come onto that land traditionally harvested by village B and take the sage, rosemary, oregano, Vitex or whatever growing wild on that land. It not healthy to steal and justice in a Turkish village is generally far more swift than in a Turkish court. That's why the notion of folks harvesting their own wild-grown plants in this part of the world sounds strange to me.

Photo 04: A field of Rosa damascena in the early morning. It generally takes three years for a Rose plant to attain full maturity but Roses can be harvested prior to that time. A mature Rose field will yield 600-700 kilograms of Roses per hectare (2,471 acres), but there are few Rose fields that large - most are an acre or less. Fields that are side-dressed with manure can produce as much as 750 kilograms per hectare. Rose growing is not the main crop for these farmers - it is merely a cash crop to supplement their annual income.



Photo 05

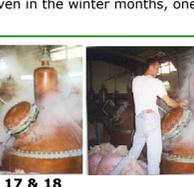


Photo 06

Photo 05: The Damask Rose (Rosa damascena) is a hardy "shrub" type Rose that can be grown from cuttings - and they will produce their own root stock. If a Rose bush is doing poorly or dies - it is replaced in December or January with cuttings from another Rose bush. A typical cutting is 80 cm long and is planted 40 cm deep. When cuttings are planted we can count on a 60%-65% chance of harvesting some Roses the first season, and a 100% chance the second season.

Photo 06: Roses bagged and ready for transport to the check-in station. The fields are normally picked every other day as the Roses are continuously blooming during the harvest period. There is no way to know how many people are hired to gather the Roses because there are thousands of Rose fields spread out within a 40 or so mile radius of Isparta. The length of the harvest depends on the weather - more rain, longer season - between 6 and 8 weeks all told - this year (2001) was a good one and it lasted 8 weeks.

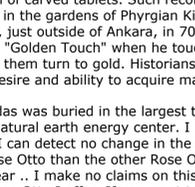


Photo 07

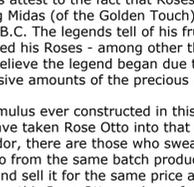


Photo 08

Photo 07: Harvesting the Rose Blossoms. The Roses are pulled between the fingers so the entire blossom pops off into the hand; nothing remains but the bare stem from which the Rose had grown. An experienced picker can harvest as much as 60 kilograms between 0500 to 1100, however, the average worker will pick closer to 40 kilograms. The pickers know how to avoid the tiny thorns and the many bees. For many of the pickers, it is the ONLY cash they will earn in a year. A good one can make \$12-\$15 (2001 prices) in that 6 hours .. not bad wages for the city and outstanding wages for the village. The pickers are housewives and students on school break because the men are busy dealing with other crops.

Photo 08: Bags of Rose blossoms are gently man-handled upon arrival at the RGA distillation facility. The RGA hires 80 to 100 people just to handle distillation during that period.

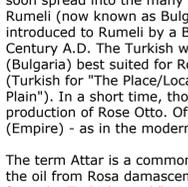


Photo 09

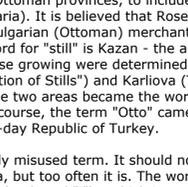


Photo 10

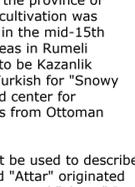
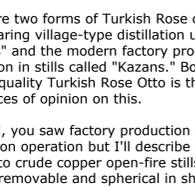


Photo 11

Photo 09: Bags of Roses are stacked beside each still. Each of the bags weighs 20 to 22 kilograms. The workers stack 24 or 25 bags (500 kg) beside each still.

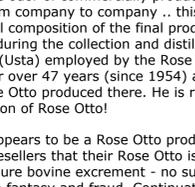
Photo 10: The strong but pleasant fragrance of the bagged Rose petals is much like the finished product. The distillation facility has a great odor prior to, during and following the Rose distillation process.

Photo 11: The RGA has five factories for production of Rose Otto and one for Rose Concrete. They have 40 primary stills and 10 secondary stills - each still has a capacity of 2,000 kilograms. Following the period of distillation, the factories are closed down until the following year. The RGA stills are never used for distillation of other aromatic products. Imagine the cost of maintaining facilities that will only be used only 6-8 weeks in a year!



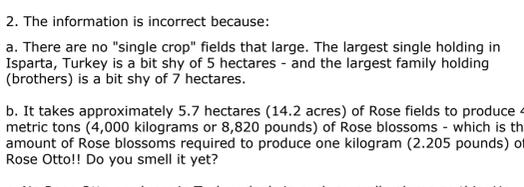
Photos 12 & 13

Loading the stills. Each still is loaded with 1,500 kilograms of fresh spring water and 500 kilograms of Rose petals.



Photos 14 & 15

These 48 year old copper stills are well seasoned and have never been used for anything but distillation of Roses. Even in the winter months, one can detect the odor of Roses in them.



Photos 16, 17 & 18

The stills are fired up and after approximately 1 hour, they are reopened. The spent Rose blossoms are dumped from the bottom of the still into a trough that flows to an outside catch pond. The still is then flushed with water and refilled with fresh spring water and Rose blossoms. After the Rose petals in the holding pond dry, they are used for fuel and/or fertilizer.

Part 2

Due to a shortage of records and contradictions in many of the available records, ancient history is sketchy - at best. Likewise, the origin of Rosa damascena has been a subject of debate and speculation for many centuries - and research continues. It is generally believed that the Rosa damascena originated in the Neolithic period, in southern Anatolia, as a hybridization of Rosa gallica and Rosa phoenicia, both of which have grown wild in Anatolian Turkey for centuries - and continue to grow wild here today. As early as 3,000 B.C., Anatolia was a land of independent city states and petty kingdoms. Excavation of these ancient sites show that the rulers lived in splendor - mounds of golden ornaments and jewelry attest to the fact that they wanted for nothing. The difficulty of producing Rose oil would not have been an issue for these monarchs. Though there are no credible records for this period and all of these cities were devastated towards the end of the third millennium B.C., there is some evidence that forms of Rose oil was being prepared in Anatolia as early as the 4th century B.C. by macerating Roses in olive oil.

Then came other civilizations - the Mycenaean, the Hittites and others. All of these civilizations were destroyed and all memory of them was erased until recently. It was the coming of the Phrygians that left us some history in the form of carved tablets. Such records attest to the fact that Roses were growing in the gardens of Phrygian King Midas (of the Golden Touch), in Gordion, just outside of Ankara, in 700 B.C. The legends tell of his frustration with the "Golden Touch" when he touched his Roses - among other things - and had them turn to gold. Historians believe the legend began due to the King's desire and ability to acquire massive amounts of the precious metal.

Over a natural earth energy center. I have taken Rose Otto into that tomb and though I can detect no change in the odor, there are those who swear it is a finer Rose Otto than the other Rose Otto from the same batch produced in the same year .. I make no claims on this and sell it for the same price as the other Rose Otto I offer. If you want to try this Rose Otto - ask me for the Midas Rose Otto.

By the 1st century AD, Rose cultivation was common in Turkey. During that period, it is likely that much of the Rose oil was extracted by boiling the Roses and scooping off the oil that floated on the top of the water. I've often read that in those days, Rose oil was considered an impurity and was discarded, but the Turkish professors and historians I have talked with here laugh at that notion. It appears that this tale (speculation) is based on a fantasy that has been passed along from writer to writer until it became a popular rumor.

Ottoman documents speak of Gulcuser (Rose Oil sellers) and Gulcuser (Rose Water sellers). There are paintings of these colorful peddlers in Ottoman archives and museums - and colored prints on my desk.

The Turkish word for Rose is Gul - the Turkish word for smile is also Gul. Gul and derivations of the word are the most popular names for females in Turkey - I have recorded over 200 and there are many more.

Crude distillation of Roses for the oil probably began in Persia in the late 7th Century A.D. By the 9th Century, Rose oil was commonly produced in Persia and the technology began to spread to other places, to include Anatolia, which at the time was occupied by various tribes of Turkic peoples. Records of that period reflect horses being traded for bolts of woven materials and containers of Rose Oil.

It was in the 14th Century A.D., after the fall of Byzantium and the conquest of Anatolia by the Ottomans, that a new empire that was to rule for more than 600 years took control of Anatolia and parts of Europe. Production of Rose oil soon spread into the many Ottoman provinces, to include the province of Rumeli (now known as Bulgaria). It is believed that Rose cultivation was introduced to Rumeli by a Bulgarian (Ottoman) merchant in the mid-15th Century A.D. The Turkish word for "still" is "kazan" - the areas in Rumeli (Bulgaria) best suited for Rose growing were determined to be Kazanlik (Turkish for "The Place/Location of Stills") and Karliova (Turkish for "Snowy Plain"). In a short time, those two areas became the world center for production of Rose Otto. Of course, the term "Otto" came from Ottoman (Empire) - as in the modern-day Republic of Turkey.

The term Attar is a commonly misused term. It should not be used to describe the oil from Rosa damascena, but it often is. The word "Attar" originated from the Turkish word "Atir" (undotted "iti") - which is pronounced "antur." It simply means "sweet-smelling or fragrant". Today, the correct usage of the word Attar is to describe those oils produced in India that are co-distilled with Sandalwood.

It was in the 1880's that modern (for that time) commercial hydro-steam production of Rose Otto began in the area of the Ottoman Empire that is presently the Republic of Turkey. Following the fall of the Ottoman Empire and the rise of the new Republic of Turkey, the founder, Mustafa Kemal Ataturk, began to push rapid modernization and commercialization and in the early 1930s, he created the modern Rose Otto production center in Isparta, Turkey .. an area that is often referred to as the Rose Fields of Turkey.

We must be careful to avoid becoming victims of the misinformation and disinformation concerning production of Rose Otto. We can read where the center of Rose Otto production is still Bulgaria, but today Bulgaria produces far less Rose Otto than does Turkey. It is likely that this rumor is based on writers refusing to update their ancient references, a problem common in the cottage-industry of aromatherapy. As stated herein, Bulgaria was once the world center for production of Rose Otto but Bulgarian production began a decline during and following World War II and the rise of the Communist regime. In June on this year, I read a newly released report from Mr. P. Tardy of the World Bank, on the production of Rose Otto. This report stated that 75% of the world-wide production of Rose Otto is produced by Turkey and that 65% of the Rose Otto produced in Turkey is produced by the Rose Growers Association (RGA). I have personal knowledge that private Rose Otto producers in Turkey frequently make large purchases of Rose Otto from the RGA.

As for Bulgarian Rose Otto, if one finds a good Bulgarian Rose Otto, the quality will be similar to that of the Turkish Rose Otto .. however, the fall of the Communist regime in Bulgaria created a power vacuum in the administration and control of many Bulgarian industries. This vacuum was quickly filled by elements that operate in a manner that creates a need for buyers to exercise caution when purchasing Bulgarian products. Find a proficient, honest Bulgarian Rose Otto distiller and you'll get a fine product .. but Bewest Emptor!

There are two forms of Turkish Rose oil distillation, the traditional but slowly disappearing village-type distillation using log-fired crude stills known as "Imbeks" and the modern factory production method using hydro-steam distillation in stills called "Kazans." Both forms have distinctive characteristics, but the quality Turkish Rose Otto is the factory produced oil - there are no differences of opinion on this.

In Part I, you saw factory production photos - I don't have photos of a village production operation but I'll describe it. For centuries, the villagers loaded roses into crude copper open-fire stills that consist of a retort and a head. The head is removable and spherical in shape. It's connected to a pipe which is laid through a pool of water to cool the condensate. This is the simplest form of distillation and produces a lower percentage of oil, but some nice hydrosols. Controlling the temperature is next to impossible as many of these stills are over open fires. Those of you who have made the Annual Rose Pilgrimage to Turkey have seen such stills (Imbeks) in the hallways of the RGA Headquarters.

The citronellol content of village-type produced oils is lower than that of the commercially produced, hydro-steam distilled oils and often one can detect a "burned" odor in the village-cooked oil.

Even the odor of commercially produced, hydro-steam distilled Rose Otto can vary from company to company .. this is due to slight variations in the chemical composition of the final product which can be caused by a number of factors during the collection and distillation of the Rose blossoms. The master distiller (Usta) employed by the Rose Growers Association has worked in the trade for over 47 years (since 1954) and there is a consistency of quality in the Rose Otto produced there. He is recognized in Turkey as THE EXPERT on production of Rose Otto!

There appears to be a Rose Otto producer - or perhaps a wholesaler - who is telling resellers that their Rose Otto is produced from a "single crop" of Roses. This is pure bovine excrement - no such thing exists - the notion is somewhere between fantasy and fraud. Continuation of this fantasy shows a lack of understanding of the reality of Rose cultivation in Turkey. If you hear or read of someone claiming to sell a Turkish Rose Otto that was produced from a "single crop" of Roses, you should consider the following:

1. Someone is playing with words or repeating the marketing hype fed them by the source of their Rose Otto. Why would a source give out such erroneous information? To make their product sound special! The only thing missing is a claim of the Roses only being harvested by virgins between the ages of 14 and 16, each being at least a "9" on a 1 to 10 beauty scale, and each wearing a white silk gown while chanting Hari Krishna and praying for forgiveness for each Rose blossom picked.
2. The information is incorrect because:
 - a. There are no "single crop" fields that large. The largest single holding in Isparta, Turkey is a bit shy of 5 hectares - and the largest family holding (brothers) is a bit shy of 7 hectares.
 - b. It takes approximately 5.7 hectares (14.2 acres) of Rose fields to produce 4 metric tons (4,000 kilograms or 8,820 pounds) of Rose blossoms - which is the amount of Rose blossoms required to produce one kilogram (2.205 pounds) of Rose Otto! Do you smell it yet?
 - c. No Rose Otto producer in Turkey deals in such a small volume as this. He couldn't afford to maintain a facility that is used for only 6-8 weeks a year if he had to depend on producing single crop oils since his total production would be a kilogram or so - he couldn't fire his stills up for a kilogram of Rose Otto.
 - d. The only way a producer operating in this manner could stay in business would be to use his Rose Otto stills to produce Rose Otto and then Oregano, Rosemary, Sage and other oils. But this is not happening EITHER - I know ALL of the Rose Otto producers in Turkey and I know that NONE of them are doing this! And I know that there is no Rose Otto being produced from this so-called "single crop" of Roses.
 - e. Keep in mind what I have said earlier and you will understand why there are no large Rose fields. No single farmer can afford to devote a large portion of his lands to a single crop that must remain in the ground year after year and can only be harvested one time each year. These peasant farmers are ignorant - but they are not stupid!
 - f. No farmer or group of farmers can afford to invest in the expensive infrastructure of a distillation facility and there are NO farmer-owned distillation facilities here. Remember, the Roses must be distilled within hours of harvest so there must be many stills in use at the same time. This is the very reason for the existence of co-op distillation facilities. So strike this possibility also.

Distillation of Rose Otto from a single crop is just not a reality. I don't make up these facts and figures - that's why the way it is. If you read information contrary to the above, it is false information!

3. The information is unnecessary because:
 - a. Use of a single crop is not desirable in the first place.
 - b. If large single crops were available the Roses from different fields would still be used in the production of Rose Otto because it is the slight variation in the Roses found in many fields within a 40 mile radius of Isparta that produces the finest Rose Otto. This fact can be confirmed by asking any expert on Rose Otto! I think that anyone who wishes to believe their supplier's marketing hype (if he is the source of the misinformation) check it out for themselves because there is some credibility at stake when one continues to push misinformation! I have publicly stated this before and now I have said all I am going to say on the subject. I won't argue this point further and I won't argue that the moon is made of green cheese because either argument is foolish. I will, however, take bets on the accuracy of my information and will give odds to anyone who wants to lose money - just decide how much you can afford to lose and let's make a bet ...

One publication recently stated that it takes between 2 and 4 tons of Rose blossoms to produce a kilogram of Rose Otto. There has never been a kilogram of Rose Otto produced with less than 3,500 kilos of Rose blossoms!

Another rumor that we must watch for is that fresh Rose Otto is better than aged Rose Otto - its just not true! The odor of Rose Otto improves with age. If you want to do a nose test for yourself, I can supply you with a gram of Rose Otto from crops distilled in 1997, 1998, 1999, 2000 and 2001. Due to similarity of chemical composition of the product, this is true for Bulgarian and Turkish Rose Otto, however, one is not likely to easily find any aged Bulgarian Rose Otto. The need for cash forces most producers (Turkish and Bulgarian) to sell their product the same year it is produced - mostly to perfumeries and often at slightly reduced prices. It is only the large Co-Ops that have the financial capability to sit on millions of dollars of Rose Otto. Each year, the Rose Growers Association produces a bit more Rose Otto than they plan to sell in that year - and I like that!

For the new folks who have just started dabbling in essential oils, I'll say that the cottage-industry of aromatherapy has a foundation based on rumor/misinformation/disinformation and marketing hype. If not for all of this it might be boring. Without these distractions, one could get the same training from any teacher, read the same facts in any reference publication and decisions on which seller's essential oils one should purchase would be narrowed down to points of price and proof of quality. Take away all the intrigue and narrow the issues down to facts that are mutually agreed upon and the only thing left are the esoteric issues. ;-)

Photo 01

Photo 02

Photo 01: The Rose oil separating from the oil-bearing water in this photo of the first distillation is known as "Crude Oil, First Oil, Raw (Chi) Oil or Direct Oil". It's thick, dark, highly concentrated and very valuable but it's not sold in this state; it will later be blended with the Rose oils from the second distillation (the cohobation). This "Crude Oil" makes up approximately twenty percent of the total volume of oil that will be rendered from that distillation. The remaining eighty percent will be recovered from the second distillation of oil-bearing waters in a process called "cohobation."

Photo 02: This is the Crude Oil after filtering. It's kept in glass flasks and then blended with the oils from the second distillation (cohobation) to produce the final product - Anatolian Rosa damascena.

Photo 03

Photo 04

Photo 03: The oil-bearing water from the first distillation (the Rose blossoms) is pumped into these large tanks to be held until it goes through the second distillation (cohobation). The cohobation is performed in a separate still maintained for that purpose only. Contrary to what we read in some books, the oil-bearing waters ARE NOT recycled through the spent Rose blossoms. There would be no purpose in doing this as the Rose blossoms have given up all the oil they will give during the initial distillation. The cohobation is only to extract the lion's share (around 80%) of the remaining Rose oil from the oil-bearing water.

Photo 04: Rose oil extracted from the second distillation (cohobation) of the oil-bearing waters is called "Second, Indirect and/or Recovered Oil." I prefer to call it Liquid Gold! In this photo, the golden colored liquid at the top of the Florentine Flask (cylinder) is Rose oil - that underneath is oil-bearing water - it is the Rose Hydrosol. There's a dump valve in the center of the Flask - when the level of Rose oil rises to the top of the valve, it spills over and escapes through this tube/valve into a glass holding bottle. A small amount of the water will also escape. The master distiller (Usta) will later remove that water using a hose and suction - like siphoning gasoline from your car.

After blending of the first and second oils, the final product, the Anatolian Rose Otto, is packed in tinned steel containers called "Kumkuma" - these containers look like US Civil War canteens. They are the containers that those of you who have purchased Turkish Rose Otto in bulk have wanted to open - until you figured out that it was a very easy task .. ;-)

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Y'all keep smiling
Butch Owen