

Rose distillation in Turkey.

In June 2000 I saw the full production cycle of Turkish rose oil.
See also the text [below](#) of my talk on the trip.



[Please see the update 2015 from Gulbirlık below.](#)

I was invited there by Butch Owen (above), an American who has lived in Turkey for around 20 years. Since he speaks the language like a native, he has direct contacts with growers, producers and miscellaneous other people. He is treated by them as an old friend, which of course opened doors that might be closed to other people.

The organisation that I visited was the State controlled co-operative. They have a large office, laboratory and cosmetics production building. On the same site they process small amounts of rose concrete. They have 5 distillation plants in the Isparta area (consisting of a total of 80 primary stills and 10 secondary stills). The roses come into those from the surrounding small farms.

It was interesting that the small family-owned farms did not have vast fields of roses, but rather they had many small fields interspersed by fields growing all kinds of other crops. Each farm seemed to have just a few rose fields making self distillation uneconomic. Hence the reason for co-operative distillation facilities.



The bushes are extremely prolific in flowers and keep producing roses for a few weeks. This means picking occurs almost every day. It was interesting that the rose bushes are left in the same location for 40 years or more, adding just animal manure as fertiliser. They trim the bushes back annually, and every 8 or 10 years they are cut to the ground.

The rose bushes are about waist height making for easier picking. This is mostly done by the women from the villages who are paid by weight picked. The speed that they can pluck the flowers from the bushes is quite remarkable.



The night before we arrived it had rained hard, so we thought harvesting might be postponed. However, the following morning it was sunny and they picked the flowers as normal. We were told it just meant they had to get them to the still a bit quicker than normal to prevent fermentation.

Picking begins before the sun rises and stops around 11 A.M. Once picked, the roses are put in sacks which are taken by tractor trailers or old farm trucks to the nearest distillation plant. On arrival the sacks are quickly emptied into 40 year old seasoned copper stills. The first distillation is in a range of about 8 large stills. Each takes 1500 kilos of water and 500 kilos of rose petals.

This first distillation takes about an hour and three quarters and produces a layer of thick brown rose extract around an inch deep in the glass flask. This material is so valuable that it is never sold - despite the hype of some aromatherapy suppliers. When the first distillation is complete the distillation water is pumped to the second distillation units. Here the 'cohobation' occurs for about half an hour; the final result being rose hydrosol and the second rose oil. Later, the first and second rose oils are blended to get the final product - rose otto.



As is common with distillation, the rosewater and oil do not smell too good when fresh. The beautiful fragrance takes a few weeks to appear. In the case of rose oil it can take a year or more to obtain its best aroma and it continues to improve if stored properly.

The distillation plant is set above concrete channels in the floor. These are where the waste still jacketing water and the spent roses are discharged. The channels lead into an earth lagoon outside the factory. Once the residue dries out, the farmers use this on their fields as mulch.

The hot rosewater is led off into large stainless steel storage tanks (above right) direct from the still. This of course reduces the possibility of atmospheric microbial contamination.

The Turks prize this rose oil so much that these factories are only open a few weeks of each year. Government regulations prohibit using these stills for anything else for fear of contaminating them. So imagine a factory in the West being open for just a couple weeks and what that will do to the price of the end product. In addition it requires approximately 4 metric tons of rose petals to make one kilogram of rose otto. So when people think rose oil is so expensive, perhaps you can see why.

At their H.Q. I saw the processing of the flowers into concrete. This was only a small scale operation just to keep some of their big overseas customers happy. Here the rose flowers are placed into a large mixing machine where they are rotated along with Hexane as a solvent. The liquid extract is filtered and extracted twice with hexane before finally pouring into steel cans. The hexane solvent is recycled and used over and over again. The cans have a hole cut out of the lid so that as the liquid sets hard, the residual hexane given off just evaporates. This 'concrete' is then shipped to their customers who will reprocess it to make an absolute.

This organisations rose oil is certainly of the highest quality which is of course reflected in the price. You can get what is called "village oil", this is produced in small direct fired stills in the villages, but its fragrance is dreadful for aromatherapy purposes. It has these caramelised notes that certain perfumers prefer, but the caramel notes are due to the overheating of the oil in the old stills. I was told by several experts that certain private producers in Turkey purchase these village oils, blend them with cheaper imported rose oil before reselling it as "Turkish otto". This fraud can easily be detected with GC testing, but my guess is a lot of this lower grade blended oil finds its way into the aromatherapy market.

Also in their HQ, they have production facilities for making soaps, shampoos and skin creams using rose oil and water. It was nice to see that they also have laboratories capable of excellent quality control and research on their products.

While we were there, the chemist was doing challenge testing for bacteria and testing of PH on some products. The entire process in the products lab. is mechanical and none of the products are touched by human hands. The laboratory is proud of the ISO 9002 Certificate they have on the wall in the entrance way.

The main analysis of rose oils was undertaken by the Aromatic and Medicinal Plant and Drug Research Center at Andalou University. This department has some of the finest phytochemical laboratories in the world and really there is little they cannot test for on botanical extracts.

To summarise: Turkish rose oil and rosewater from this State controlled organisation are among the finest products one could wish for in aromatherapy. I have visited several growing areas around the world, but was most impressed by their set-up and the pride they took in the quality of their products. If in time the rose oil production is privatised, and with the general development in Southern Turkey, it remains to be seen if this reduces the availability of this fine oil. Clearly the small farmers would get a far higher income working in and for their fast developing tourist industry.

Photographs copyright of Butch Owen and Martin Watt.

So what's Rose oil good for then?

Here is an extract from the basic information files on essential oils. The professional monographs of course have far more.

BATHS: Rose makes a wonderfully relaxing, luxurious bath, perfect for relaxing after a stressful day at work. A few drops in the bath can leave a long lasting gentle fragrance on the skin, ideal for parties or for seduction.

MASSAGE: An ideal oil for massage. It is perfect for helping relieve stress-related conditions and for mild psychological ailments. Due to its strong influence on the mind and emotions, it may help improve recovery from a wide range of illnesses for example: Anxiety, P.M.S. menstrual disorders of nervous origin, insomnia, headaches, and nervous palpitations. It is good for soothing skin care preparations, for mild burns and minor skin abrasions, for hay fever and allergic skin disorders and finally as an aphrodisiac.

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A trip to Turkey - Rose production and other sights.

Here are the notes of a talk I gave about the trip to Turkey in June 2000. Some of this is in the file above about Rose oil production, but there is some additional information which some may find of interest. The notes are only slightly tweaked to take account of the passage of time.

This article should be packed with photos, but Butch is always too busy with planting, hunting, writing on facebook, etc. to let me know which ones of his hundreds that I can use.

I had been invited to Turkey by Butch Owen, an American who has lived in Turkey for 18 plus years. At that time he had a large business based in Ankara. He dealt in bulk essentials oils, herb teas and other Turkish products most of which were shipped to the USA. He was also the Turkish director of Sata travel, a large agency that handles US military travel worldwide. He has spent most of his life in the US military mainly as an officer in their police services, and been in many countries as a result, but at heart he is still a country boy having grown up in the backwoods of Alabama. Since our trip, he has married again and settled in his retirement in Tennessee. Having come from an environment where herbal medicine was the only medication for many, he has a deep interest in botanical medicine and ensuring he only deals in unadulterated products. This led to an association being formed with Professor Baser of Andalou University who tested all his oils - more on that later.

Butch speaks Turkish like a native and had direct contacts with growers, producers and miscellaneous other people. He is treated by them as an old friend, which of course opened doors that might be closed to other people. He was well known in the bars of Ankara frequented by Military and political figures alike.

His language skills got a speeding fine reduced by half because he chatted up the cop who pulled us over, whereas a group of Turkish politicians who bombed by us at very high speed, got hit for the full amount. I think as a little aside that this was rather interesting as it showed the police force were defiantly impartial. Many people have the impression that Turkey is almost a military state, but this is far from the truth. In the UK we were fed a constant stream of misinformation by our media about Turkey and other countries. Don't believe 1% of what you hear on the news or read in comics (some people call them newspapers)!!

A short history:

The history of roses and rose oil production in Turkey is ancient. Essential oils have been produced in the Anatolian region as a home and village activity for hundreds and possibly thousands of years. They used simple copper stills consisting of two vessels one on top the other. The bottom vessel contains plant material and water. The top one is filled with cold water and acts as the condenser. As the oil condenses it is led out through a small copper tube. These home stills were mainly used to produce a home made drink distilled from fermented raisins, dried figs and mulberries.

No one knows how long rose oil has been produced in that area, but we do have records showing that in the reign of King Midas (circa 700BC) that roses were highly regarded. It is good to consider the known history of this region; the oldest village in the world has been found in Turkey dated to around 6500 BC. Turkey has also been a meeting place of many ancient civilisations all contributing a broad spectrum of knowledge on how to utilise plant materials. The southern coastal area has numerous Ancient cities dating back to the dawn of civilisation. It was on a river at Tarsus on the southern Mediterranean Turkish coast that Cleopatra had her famous meeting with Antony. With her reputation of enjoying fine perfumes, perhaps that might have contributed to the choice of that location. This whole area produces fine wines and the plants needed to produce perfumes and unguents.

To more modern times:

It is known that dealers in essential oils traded in the 1700s in Turkey. However, the production of rose oil on a large scale was triggered by the founder of modern Turkey Kemal Ataturk. His mausoleum in Ankara is well worth a visit, a very special place. He visited Isparta in the 1920s, saw the local village production, and ordered the building of modern rose extraction facilities.

An explanation of the term 'otter' often applied to rose oil: This comes from the Ottoman empire and should only refer to an oil from that part of the world. The term 'attar' should never apply to a hydro distilled oil. A true attar is an extract originating in India containing rose and sandalwood, but the aromatherapy world is packed with such deliberately misleading hype.

So here goes on rose oil itself:

Before going to the Cappadocia region and to Isparta which is the big rose production area, we called in at a couple of other places which I will tell you about at the end. After those visits we then headed out for Isparta which is I think around 250 miles south of Ankara and lies about 80 miles inland from the southern Mediterranean coastal resorts. Turkey is in fact a very big country; we were surprised to find we had done 2000 miles in a relatively limited area.

We got to Isparta town that night and thanks to Butch's staff back home, we were already booked into a nice central hotel THEN (\$16.26 a night-about £10.50). The next day we headed out of town to the state controlled rose production co-operative called Gulbirluk. They have a large office, laboratory and cosmetics production building. On the same site they also process small amounts of rose concrete. They control 5 distillation plants in the Isparta area (consisting of a total of 80 primary stills and 10 secondary stills). The roses come into those from the surrounding small farms.

At Gulbirluk we had about 2 hours of meetings with the deputy director and director. These people are political appointments and have little idea about how western business works. All they seemed interested in was Butch trying to get back their big US customers that were lost years previously because of internal politics. However, poor old Butch trying to get them to commit to a base price around which he could negotiate with US companies was just impossible. This way of doing business is regrettable because they told us they could easily double existing output from the 1,000 kilos this year, if they had the customers. Currently most of their production goes to France. Knowing what I do about the French trade in essential oils, I think you would be hard put to get an unadulterated Turkish rose oil back out of that country.

After lunch we were taken out to one of the distillation plants some distance out in the country. It was interesting that the small family-owned farms did not have vast fields of roses, but rather they had many small fields interspersed by fields growing all kinds of other crops. Each farm seemed to have just a few rose fields making self distillation uneconomic. Hence the reason for co-operative distillation facilities.

The night before we arrived it had rained hard, so we thought harvesting might be postponed. However, the following morning it was sunny and they picked the flowers as normal. We were told it just meant they had to get them to the still a bit quicker than normal to prevent fermentation occurring.

The rose bushes are about waist height making for easier picking. This is mostly done by the women from the villages who are paid by weight picked. The speed that the women can pluck them off the bushes is quite remarkable. The bushes are extremely prolific in flowers and they keep producing roses for several weeks. This means they have to be repicked almost every day. It was interesting that the rose bushes are left in the same location for 40 years or more, just adding animal manure as fertiliser. They trim the bushes back annually and every 8 or 10 years they cut them to the ground. The Roses are all *Rosa damascena* variety *kazanlik*. This is the same variety that the Bulgarians use and is believed to have been developed in Bulgaria originally part of the Ottoman empire. Despite being the same variety, the chemical composition of the oil produced in Turkey is different and many consider it superior in fragrance to the Bulgarian oils.

Rose picking begins before the sun rises and stops around 11 a.m. Once picked, the roses are put into sacks which are then taken by tractor trailers or old farm trucks to the nearest distillation plant. This site of stacks of sacks of pink roses is quiet wonderful.

Upon arrival the sacks are quickly unloaded onto a high floor overlooking the stills. From here they are emptied into the 40 year old seasoned copper stills. The first distillation is done in a range of about 8 large stills. Each takes 1500 kilos of water and 500 kilos of rose petals.

This first distillation takes about an hour and three quarters and produces a layer of thick brown rose extract around an inch deep in the glass flask. This material is so valuable that it is never sold despite the hype you will hear from some aromatherapy suppliers.

When the first distillation is complete, the distillation water is pumped to the second distillation units. Here the cohabitation occurs for about half an hour; the final result being rose hydrosol and the second rose oil. Later, the first and second rose oils are blended to get the final product - rose otto.

As is common with distillation, the rosewater and oil do not smell too good when fresh. The beautiful fragrance takes a few weeks to appear. In the case of rose oil it can take a year or more to obtain its best aroma and it continues to improve if stored properly. The oil I saw distilled in June will not be sold until the following summer. *Incidentally, I visited Kent (UK) to see the English Lavender oil distilled. As with rose that also does not smell too good when it is fresh. It takes a few months to develop its best aroma.*

The rose stills are set above concrete channels in the floor. These are where the waste still jacketing water and the spent roses are discharged. The channels lead into an earth lagoon outside the factory. Once the residue dries out, the farmers use this on their fields as mulch.

The hot rosewater is led off into large stainless steel storage tanks direct from the still. This of course reduces the possibility of atmospheric microbial contamination. Despite this, there is no way I would advocate the internal use of this rosewater unless it had got a proper preservative added.

The Turks prize this rose oil so much that these factories are only open a few weeks of each year. Government regulations prohibit using these stills for anything else for fear of contaminating them. So imagine a factory in the west being open for just a couple weeks and what that will do to the

price of the end product. In addition, it requires approximately 4 metric tons of rose petals to make one kilogram of rose otto. So when people think rose oil is so expensive, perhaps you can see why.

At the Gulbirlilik H.Q. I saw the processing of the flowers into concrete. This was only a small scale operation just to keep some of their big French customers happy. Here the rose flowers are placed into a large mixing machine where they are rotated along with hexane as a solvent. The liquid extract is filtered and extracted twice with hexane before finally pouring into steel cans. The hexane solvent is recycled and used over and over again. The cans have a hole cut out of the lid so that as the liquid sets hard, the residual hexane just evaporates. This concrete is then shipped to their customers who will reprocess it to make an absolute.

The Turkish co-op distilled rose oil is certainly of the highest quality which is of course reflected in the price. You can get what is called "village oil", this is produced in small direct fired stills in the villages, but its fragrance is dreadful for aromatherapy purposes. It has these caramelised notes that certain perfumers prefer, but the caramel notes are due to the overheating of the oil in the old stills. I was told by several experts that some private suppliers in Turkey purchase these village oils, blend them with Turkish hydro distilled oils (and even imported Bulgarian rose oil) before reselling it. This can easily be detected with GC testing, but my guess is a lot of this lower grade blended oil finds its way into the aromatherapy market.

Also in the co-operative's H.Q. they have production facilities for making soaps, shampoos and skin creams using rose oil and water. It was nice to see that they also have modern laboratories capable of excellent quality control and research on their products. The entire process in the products lab. is mechanical and none of the products are touched by human hands. The laboratory is proud of the iso 9002 certificate they have on the wall in the entrance.

While we were there, the chemist was doing challenge testing for bacteria and testing of pH on some products. I have always nagged people about the dangers of using unpreserved hydrosols. While there the chemist tested out different levels of benzoate in the rosewater so that we could see how it affected it. The pH level hardly changed and at less than 0.5% there was little perceptible change in fragrance although I thought it improved the potency of the fragrance slightly. I can't emphasise too strongly how important it is to only use these hydrosols if you know they are safe from microbial contamination. Many aromatherapy suppliers either don't bother to test, or sell them with preservatives but as "totally natural" knowing full well they are not.

The main analysis of the rose oils is undertaken by Prof. Baser at Andalou University under contract. His department has some of the finest phytochemical laboratories in the world. There is little they can't test for on botanical extracts.

Turkish rose oil and rosewater from the state co-operative is the most highly controlled and excellent quality product one could wish for in aromatherapy. I have visited several growing areas around the world, but was most impressed by their set-up and the pride they took in the quality of their products.

Following our trip to the distillation plant we were taken the village of Kilic to meet the mayor who Butch also knew. This village was the centre of an important agricultural area. The mayor is the person in charge of production and was a key political figure. I asked him about what other things they produced? It included all the normal vegetable one would expect in a warm fertile area, but also several citrus fruits, cherries, melons and walnuts. This part of Turkey has a staggering range of fruits, nuts and vegetables. They have a wonderful cherry juice which is everywhere in cartons and other soft drinks - wish we could get it. They also have the biggest and best hazelnuts I have ever seen. When I asked the mayor where most of their exports went, the answer was France!

Turkey does also produce other essential oils. Three types of *Origanum* (marjorana, *onites* and *multiflorum*) grow wild, as do *salvia fruticosa* and *rosmarinus officinalis*. Butch took me to one massive ruined greek city and all around the ruins was wild oregano. The locals let their cattle

graze among these ruins, so I guess the meat would be ready seasoned. He has also found one grower of lavender, but guess where the whole production goes - France. They have a huge citrus industry, but currently do not produce the essential oils. I would suspect that Turkish neroli would be wonderful because of the climate. Years ago they did produce jasmin, but it seems that no longer occurs.

Now back to the earlier part of my trip.

The day before we headed to Ispata, Butch took me to meet Professor Baser at the aromatic and medicinal plant research centre at Anadolu university. I was really delighted to be given this opportunity because he is one of the top phytochemists in the world. He has 4 plants named after him and so is also a practical botanist. Believe me, I am rarely left in awe at scientists, but he is really something special and is not an elitist academic. This man who is head of a huge plant research department took 4 hours out of his schedule to show us his department and even entertain us to lunch. Prof. Baser is a true phytochemist in that he uses that magic word "synergy" when talking about chemicals in plants. You will only find true experts in that field who acknowledge such a thing exists. In other words they do not just look at individual chemicals and how they work, but look at the wider picture. It was interesting that Prof. Baser did part of his training at Chelsea university UK, one of the few courses that teach practical phytochemistry. He also knew the person that taught me chemistry when I did herbal training.

The laboratories he controls are among the finest in the world with millions of pounds worth of equipment. I have never seen so much advanced equipment anywhere, from the latest GLCs right through to mass spectrometer and atomic structure detection equipment. On the more practical side they have all types of extraction equipment from ordinary distillation right through to CO₂ and even spray drying. They have a commercial scale fractionation plant; a type of closed still that can remove undesirable components from essential oils. For example, if it is a bad year for oregano oil, they can remove unwanted chemicals from an oil in order to boost the level of carvacrol which the price of the oil is based on. This is not adulteration because nothing is being added, rather it is a natural form of standardisation. At the other end of the scale they have wonderful microdistillation equipment so that a student can gather a few leaves from a plant, distill a few drops of oil and then analyse it, or if plant hunting in the wild, a little piece can be bought back for analysis.

Just to round things off, they can run any kind of tests on a plant extract, from toxicity using in vitro testing, or testing on rats if necessary, incidentally they rarely do this unless it is vital. They can do dermal testing in vitro, or on the thousands of students in the university who are always happy to earn a bit of extra cash. Finally they can do therapeutic efficacy testing. An ongoing project is testing one variety of Turkish oregano oil for anti cancer activity. They have already published a paper where rats with melanoma have healed after the application of Turkish oregano oil. Prof. Baser told me he was so convinced that oregano had anti cancer activity that him and his family take a glass of the distillation water every. Please bear in mind though they have access to the **freshly distilled water**, I would not use commercial stuff for this. However, if one can get this variety of dried herb, it is dead easy to make a tea from it which is more or less the same as a hydrosol.

I was given a copy of a book his students put together to celebrate his 50th birthday. I can't tell you what a pleasure it was to talk to such an eminent but still practical scientist.

Next stop before Isparta was the tomb of King Midas. Now thought to be his fathers tomb.

We were driving out of Ankara and passed a sign to Gordion and to its ancient palace. Butch asked me if I would like to have a look. The palace is nothing much; it is one of those ancient sites that has been built and rebuilt a hundred times. There are just some large walls left, excavated from the mound which has built up over two thousand odd years. However, there was also a tiny sign pointing to a village a couple of miles away saying 'tomb of King Midas'. Well we had to take a look at that. Within a couple of minutes of driving towards this village you could clearly see the tomb, it was very much like Silbury hill (UK) in that this 53 metre high burial mound dominates the valley.

King Midas supposedly founded the ancient city of Ancyra, the modern Ankara. He is referred to in Assyrian records as Mitas of Mushki, who paid tribute to the Assyrians after being defeated in battle. He is thought to have reigned from 725 BC to 696 BC. He is the figure of legend who is supposed to have had problems because everything he touched turned to gold including his food. This is of course a fairy tale, but the person was real. Midas is supposed to have cleansed himself of the curse by washing in the local river. Several of the rivers in this part of Turkey do contain gold deposits washed down from the mountains, thus in ancient times, gold and silver were more plentiful than now.

We parked the car by the side of the road, and got out. There growing out of the gap between the road and the kerb was a beautiful pink wild rose bush in full flower. The roses were beautifully fragrant. This was peculiar because even in Turkey wild roses are like ours in the UK with hardly any fragrance. When we told Prof. Baser about this he was very excited and told us he would try and get a sample. This excitement was because he suspected that roses were widely used in ancient Turkey, but they had no proof of if the variety was close to kazanlik or not. Such a find could be very important historically being close to such an important tomb.

Some year or so after this, the BBC made a program about a feast that was held as part of the burial process. The nature of the feast was known from pollen and other remnants excavated in the assembly area opposite the tomb entrance. Doubtless flowers were part of the ceremony and who knows of seeds might have kept self propagating over the thousands of years. There is no other housing close to the tomb to disrupt natural processes.

Next we visited the museum and then crossed the road to enter the mound. This huge mound had never been robbed or been excavated until the middle 1950s - strange for a tomb sticking out like a sore thumb and in a populated rural area. Tomb robbing has always been a village pastime anywhere in the ancient world. This is something to consider when I tell you about other things.

The entrance is a long tunnel mined into the mound. As we got to the entrance I said to Butch "this is on an earth energy centre" I can feel these natural energies in a similar way to dowsing. The central chamber is an amazing structure and is I think unique. The tomb chamber itself was built of multiple walls of juniper logs filled in with rocks and with stone roof supports. Many of those 2500 year old logs are still there. The whole structure looked to me like a massive electrical insulator. When the tomb was first excavated it was found packed with beautiful gold treasure as well as the remains of the king. The whole lot is now in Ankara museum, but what remains is some kind of energy centre. Not uncommon of course in earthquake zones, but the ancients sure knew how to utilise these emanations.

Butch took several photos in the tomb and outside. I didn't take my camera in because I knew I could get copies from him. Later after I got home, Butch said the whole reel had come out blank. Yet other films on the trip were fine, so it wasn't the camera.

Later at the hotel, we started searching our pockets. I had mislaid one of the leaves we picked off the rose bush to show Prof. Baser. I then found the file of rose oil we were both given at Gulbirlik and had a quick sniff of mine. Immediately I knew it had changed. Butch checked his and then compared it to the main batch of oil he had left in the car. The sample in the car was quite different to the sample we took into that tomb. I do not know what happened, but am sure whatever this radiation is, that it had affected the oil. I have here samples of the two oils. One is the file that went into the tomb, the other the batch that it came from. You may only be able to tell the difference if you have a good nose. I won't say anything about the difference you tell me what you think. I must say that I am certain all the talk about 'energies' in essential oils and their healing effects via this pathway is just aromatherapy hype. However, earth energy centres do exist and have effects as yet largely unknown. I can also tell you that I felt and looked 5 years younger when I came back from this trip, people even commented how much less strained I looked. So those that are contemplating a facelift, perhaps a quick trip to turkey and a visit to this tomb might be cheaper and far less painful.

Tue, 10 Mar 2015

Dear Martin Watt,

There are some small changes between the lines. But the method of the production and the rose is same. For example, we have built a new rose concrete out of the city. Its capacity is 2 times more than old one. We have put new second distillation boilers which are continue system. We put new boilers which is produced aromatic compound from the waste water of second distillation. But the most important thing is we have a large cosmetic production line under Rosense brand. We have exports too many countries with Rosense products.

May be you need to come and visit Isparta again. :)

www.rosense.com www.gulbirlik.com

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