About Fuzi processing

There has been considerable discussion about the Quality of Chinese herbs from China, in particular about Fuzi, in recent years. On my herb trips to Sichuan, in the past few years, I have gotten a bit of an insight into Fuzi production in Jiangyou, the most famous Fuzi and Wutou production and processing area in China. I would like to share these observations with everyone interested.

The Jiangyou area of Sichuan and the adjoining Longmen/Longan Mountains (this area is part of the Longmen fold, where the earthquake struck in 2008, the Fuzi growing area was hit very badly!), is the so-called daodi/proper growing and processing place for Fuzi. There is a very long tradition of Fuzi growing and processing here, according to "traditional" methods which are mainly:
- growing of the plant itself in the mountains
- digging the root after the seeds are shed and bringing it to the lowlands where it is planted in mixed culture in the rich black soil of the plain and where it grows sideroots
- plucking all but one of these sideroots at wintersolstice, so the one can grow large
- taking that one out around summersolstice (that is the "Fuzi")
- soaking it for many days in (Calciumchloride) salt solution to preserve the root and to reduce the toxicity
- boiling/steaming it to loosen the skin and the peeling it with bamboo knives by hand (only for bai fuzi)
- cutting it by hand
- steaming/boiling the cut pieces
- rinsing it for many days to eliminate the salt,
- drying it in the sun or in an oven.

Every Step in the whole process has an exact timing and strenght considered appropriate

There are specialities like yan fuzi(salty fuzi), which is preserved in edible salt, tianxiong, which is made of the rare roots that stay single and particularly large and has special processing methods, including ginger processing, and others.

Nowadays some of the processing methods have been altered, "modernized“, some actually to make an even better product, some to meet the markets need of fuzi all year round, some mainly to reduce
production costs and increase profit. Both of the latter usually reduce the quality of the fuzi that is so produced.

Methods aimed at improving quality include
-Treatment with sulfursmoke (like we do with dry fruit) to preserve and to bleach the fuzi. Sulfur itself is regarded as a Yang-Strengthening substance in the materia medica. In recent years this method is increasingly questioned and other methods are used for the purpose of preservation and an increasing number of people dont regard the bleached color as a sign of good quality any more.
- using large moveable stainless steel steamers over a gas flame to ensure even cooking of all the fuzi slices
- modern drying/low temperature baking ovens to ensure even and complete drying and to replace sulfuring

Methods aimed at meeting the markets need of all year around availability:
- growing fuzi in regions other than Jiangyou, which increases the amount of land that can be used to grow fuzi and therefore also the amount of fuzi
- growing fuzi in different climates so that almost all year round there is newly processed fuzi available.
Both of these methods are in themselves contrary to the traditional rules of fuzi growing, but while the first just means that the fuzi is not from the daodi/proper place, the latter means it cannot absorb fully the increasing sunlight between winter and summer solstice.
Nowadays almost 90% of the worlds fuzi is NOT grown in Jiangyou (Jiangyou is not a very large place). Most of the 10% that are grown in Jiangyou are reserved for a few large Pharmaceutical companies.

Methods aimed at reducing costs and increasing profit include
- for baifuzi (=baifupian) only: peeling not by hand but by soaking in solutions like Sodiumperoxyde or other, which makes the peel fall of, saves a lot of hand work
- not washing out the (calciumchloride) salt thoroughly: saves time and makes the root heavier. This method is responsible for the recently spreading reports, rumours and discussions about fuzi being of such poor quality as to induce side effects like vomiting and diarrhea, which are not typical of fuzi but of the salt that is used.
During the 50s and 60s one of the political movements was to spread (old) knowledge and not keep knowledge secret or exclusive to certain groups or elites. Another was to promote economic growth. So people were sent to the Jiangyou area to learn about Fuzi Production and processing techniques and spread this knowledge to other places, enabling more people to grow Fuzi. Since then it is also grown in the south of Sichuan, in Gansu, Yunnan and elsewhere. Most often the dug out roots from other places are brought/sold to Jiangyou for processing, (or even just for unpacking, though I haven’t seen that) often those roots are not as large as the ones grown in Jiangyou and of inferior quality. Locals say, apart from the soil, water and air being different, it is because those farmers, not having grown up with Fuzi-production as a strong local tradition, don’t take the strict growing and processing procedure seriously.

Nowadays the bureau for examination of traditional medicinals will test for the content of aconitine, the main alcaloid of Fuzi, which is what is strongly poisonous in the uncooked or undercooked root. Even though these tests are new, already by Ming-dynasty around 500 years ago, the famous physician Zhang Jing Yue complained about people overprocessing Fuzi, soaking and rinsing it for too long that is, eliminating too much of the active ingredients. So this problem is obviously a very old one. Producers since at least Ming dynasty have been aware of the problem of having too much (or too little) aconitine in the finished product, and have had to find ways of controlling the aconitine content at just the right level, not too low and not too high. In Jiangyou traditional growers and producers (usually small family enterprises, there are only 2 large companies there) control the aconitine content entirely by the above mentioned traditional measures, that is exact timing during the different processing steps and they are very proud of it. They produce at least 4 different kinds and consume their own Fuzi as health protecting and promoting substance in winter in very specific ways.

But the worry expressed by "fire school" or other TCM doctors in China who use a lot and large dosages of Fuzi, is not mainly this "old" complaint. There is –as mentioned above- the problem of producers
speeding up processing in order to be able to deliver more Fuzi in a shorter amount of time, since that is what the market wants and altering the methods to save costs and increase the (small!) profit. General changes in production methods towards more modernized production in terms of machines and agrochemicals and ever larger quantities from areas not quite suitable for Fuzi growing (this is a problem for many other medicinals as well, the market rules what people grow, not just tradition), less hand work, less value given to traditional methods and more environmental pollutants are other reasons for poorer quality (= medical strenght), as well.

Liu Lihong, one of the main exponents of the „back to the roots“ stream inside of TCM in China (my own words), for example, together with other colleagues is involved in a "traditional production Line" of TCM medicinals for this reason, where the processing of the herbs is closely watched and producers are paid enough to enable them to put as much time and hand work into processing as needed and as prescribed by the classical literature, that is the Shang han lun and other texts of comparable age. There are numerous clinical trials on their way or already finished, comparing the efficacy of Fuzi produced in different „traditional ways“, for different clinical situations. Professor Wu Rong Zhu from Yunnan province is very active in this field as well and has also developed a herb Granule made of Sheng Fuzi, that is „raw Fuzi“ only processed by boiling it in water for a very long time, avoiding the traditional soaking in salts, then steaming and then rinsing altogether, for use in Formulas like SiNiTang, the way it is described in the Shanghanlun (it says „use raw Fuzi“ there). Herbs produced by these projects are of course much more expensive than average, since more hand work is involved and only smaller batches can be produced.

There is a growing awareness of quality problems and environmental pollution not just in the case of Fuzi, but in food and medicinals (and other things) in general in China. The concept of "quality" as something of great value is strongly reemerging. I think, this is an important and positive development.

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