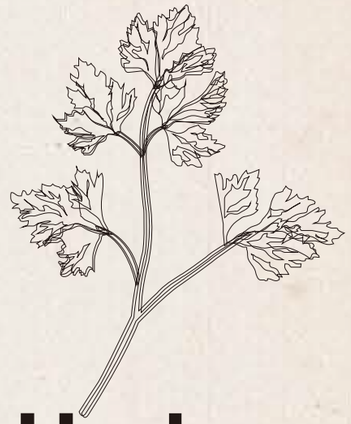

Chinese Herbs:

Elixir of Health or Pesticide Cocktail?

An Investigation on Chinese Herbs and Pesticides

GREENPEACE 绿色和平

GREENPEACE 绿色和平

3/F, Julong Office Building, Block7, Julong Garden, 68 Xinzhong Street,
Dongcheng District, Beijing, China. 100027
Tel: (86)10 65546931
Fax: (86)10 65546932
www.greenpeace.cn

Greenpeace is an independent global campaigning organisation that acts to change attitudes and behaviour, to protect and conserve the environment and to promote peace.

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Preface

From Pesticides to Ecological Farming

The so-called "Green Revolution" that William Gaud (1) was so strongly advocating, includes the extensive use of insecticides, fungicides, herbicides, synthetic fertilizers, large-scale irrigation, increased used of fossil-fuels and mono-cropping of hybrid seeds. The "Green Revolution" started after the Second World War and seemed to work increasing food production. However, it also created a greater dependency of farmers on using more and more chemical inputs while damaging the environment and threatening our health.

The latest report from Greenpeace documents - once more - the ugly side of chemical-intensive agriculture that the so-called "Green Revolution" put in motion.

It is now obvious that the "Green Revolution" failed because increases in crop production came with massive destruction in agricultural landscapes: chemical pollution, contaminated water, soil and food.

Pesticides in particular, are linked to declines in biodiversity, (including birds, amphibians and now bees (2)), detrimental pest infestation, increased economic burden for farmers, contamination of water, soil, and severe contamination of our food. In addition, the number of people undernourished (3) is heading rapidly towards 1 billion despite the fact that the quantity of food calories available exceeds what is needed now and in the future to feed everyone. To end hunger we need to address food inequality and food waste.

Chemical agriculture promoters will continue to intimidate -"use chemicals or starve"- but this approach was and continues to be untrue: a dangerous lie. In fact, studies show that ecological farming, especially in developing countries, can produce up to 80% more food (4) than the chemical agriculture while at the same time avoiding the chemical dangers to human life and the environment. Imagine what could be achieved if the world embraced the existing equitable and ecological farming solutions (5) instead of toxic agriculture!

Faced with the downsides of agriculture pesticides, many responsible policy-makers in the world agree that it is necessary to reduce the use of pesticides. We, at Greenpeace, believe that the world needs to move faster, reduce and eliminate pesticides, and rapidly switch to ecological farming without chemicals. Why? Because dependency on chemical pesticides represents an addiction afflicting global agriculture, with dire and sometimes unknown impacts on ecosystems and human health.

The situation is urgent everywhere and in China in particular. Despite plans and promises to reduce pesticides use, we can find too many pesticide residues in the food that people eat. As can be seen in this report, Chinese herbs used in traditional medicine - that have been so important for the Chinese people's health and nutrition throughout history- contain extensive pesticides residue (including multiple pesticides and too often… illegal and very dangerous ones).

China can become a leader in ecological agriculture and can resolve the pesticide crisis. China and the world need a true "Green Revolution", but this time it has to be ecological farming without chemicals!

—Kumi Naidoo
Executive Director of Greenpeace International

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Executive Summary

The use of pesticides in Chinese agriculture continues to rise by about 3% every year. Currently, the country uses almost 2 million tons of pesticides in its agriculture annually . About 70% of these pesticides wash away into the environment and end up as hazardous pollution in water, soil, and the atmosphere. As residues, some of them find their way into the food people eat, increasing health risks.

Unfortunately, this situation is only the tip of the iceberg of a much bigger problem: the general failure of chemical-intensive agriculture to feed people safely, while preventing environmental degradation.

This report from Greenpeace summarizes the findings of an investigation looking at key actors in Chinese agriculture: local farmers, traders, and employees at processing plants. It details the results from scientific testing of 65 Chinese herbal products, including wolfberries, honeysuckle, Sanqi flowers and chrysanthemum, which were purchased from nine retail chains in nine different cities across China between August 2012 and April 2013.

Greenpeace found:

• The 65 samples tested contained 51 different kinds of pesticide residues.

• 48 out of 65 samples tested positive for pesticide residues.

• Six residues were from pesticides that have been banned in China (phorate, carbofuran, fipronil, methamidophos, aldicarb and ethoprophos). These were found in 26 samples. The World Health Organization (WHO) has classified some of these pesticides as extremely or highly hazardous.

• On the San Qi Flower, thiophanate-methyl residue was 500 times over the European maximum residue limit (MRL). On the honeysuckle, the same residue was 100 times over the limit.

• 32 of the 65 samples tested contained traces of 3 or more different pesticides. The Sanqi flower contained up to 39 different kinds of pesticides, chrysanthemum up to 35, wolfberry up to 25.

Greenpeace demands the companies producing Chinese herbs:

• Monitor and better control their supply chain,

• Improve product traceability,

• Reduce their pesticide use with concrete plans and timelines.

Greenpeace demands the Chinese authorities:

• Strengthen their use instruction for the usage of pesticides, and their supervision, ensuring that all extremely or highly hazardous pesticides are effectively eliminated from being used on Chinese herbs,

• Fully implement the pesticide use reduction policy through a detailed and achievable timetable and plan under strict data supervision mechanism,

• Increase funding and adopt preferential measures to promote ecological farming.

"According to the Nonpoint Source Pollution Report released by State Council in 2010, agriculture is the major contributor to nonpoint source pollution, exceeding industry and cities."
Prof. Wen Tiejun from Remin University[1]

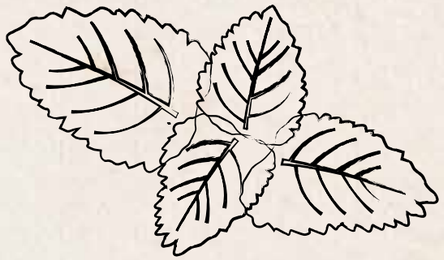
Pesticides In China

1.Pesticides: Major Source of Agriculture Pollution

China uses more pesticides than any other country in the world. In 1995, annual consumption of all kinds of pesticide preparations passed one million tons, and has been rising ever since (see figure 1). Particularly in the last 10 years, pesticide use has been climbing by about 3% every year.

The annual increase in pesticide consumption demonstrates how China's agricultural sector has increased its reliance on chemical pesticides. Groundwater contamination, reduction of fishing stock, loss of natural enemies and an increase in pesticide resistance are only a few of the problems arising from the nation's current addiction to pesticides. Of the close to two million tons of pesticide used every year, the effective utilization rate is only about 30% . The rest ends up as hazardous pollution discharged into the water, soil and atmosphere. Chemical fertilizers and pesticides not absorbed by crops pollute between 1.3-1.6 million hectares of arable land in China, or about 10-13% of the total area. Pesticides in the soil are washed into rivers and lakes through irrigation water and rain, thus becoming one of the main sources of water pollution.

[1] Prof. Wen Tiejun is Dean from the School of Agricultural Economics and Rural Development, Renmin University



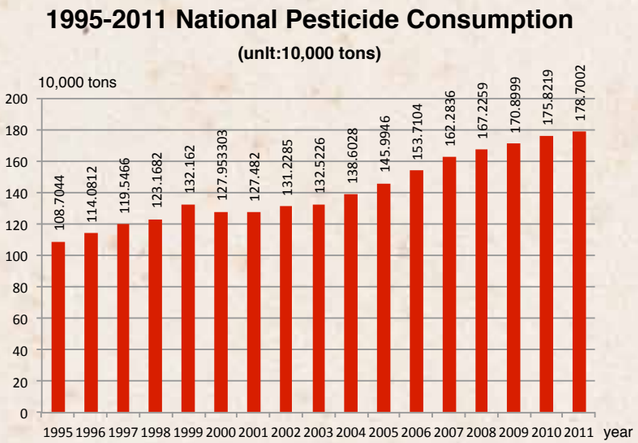


Figure 1: Pesticide consumption in China, 1995 - 20111

2. Pesticides Threaten Food Safety

Under the pretext of increasing crop yield and economic interests, agriculture is increasingly relying on chemical inputs. Food safety incidents caused by pesticides are all too common now in China, including recent cases involving contaminated cowpeas, chives and ginger. Such food safety incidents not only significantly impact the competitiveness of Chinese crops, but also threaten consumer health and reduce national trust of food safety levels.

Investigation of Chinese Herbal Products

Last year, in order to understand the scale of pesticide pollution, Greenpeace East Asia (hereinafter: Greenpeace) tested Chinese teas samples and uncovered a very serious pesticide pollution plaguing tea crops. This year, Greenpeace focused on Chinese herbs, which too are widely consumed by Chinese people. Our aim was not only to investigate if pesticides are present in Chinese herbs, but in what quantities, what kinds, and where these pesticides come from. Our investigations took us to the fields, the manufacturers and directly to the sellers of Chinese herbs.

Traditional Chinese medicine has a long history in China and is a precious component of Chinese culture. Traditional Chinese medicine is largely made from natural products and is primarily plant-based. According to the third national survey on Chinese medicinal resources, China has 12,807 kinds of Chinese medicinal resources, including herbal plants (their roots, stems, flowers and fruit), animal parts, and minerals. There are over 11,146 different varieties of herbal plants. Due to an increase of demand, there has been a sharp fall in the numbers of wild herbs available. Consequently, so many well-known Chinese herbs are now grown on farms using chemical-intensive agriculture. The quality and safety of Chinese herbs today is closely connected to the practices of the agricultural sector.

In order to unveil this aspect of the pesticide problem and the potential underlying causes, Greenpeace conducted interviews in the County of Zhongning in Ningxia province which grows wolfberries, the County of Pingyi in Shandong province, which is famous for honeysuckle farming, and the County of Wenshan in Yunnan province which produces Sanqi flowers and root.

Between July 2012 and April 2013, Greenpeace also purchased 65 popular Chinese herbs products from nine pharmacy chains in nine cities across the country: Beijing Tongrentang (referred to as Tongrentang Beijing), Yunnan Baiyao and Teana, Zhejiang Hangzhou Huqingyutang, Hunan Jiuzhitang, Tianjin Tasly, Guangzhou Caizhilin, Jinan Hongjitang, Henan Zhangzhongjing, and Hong Kong Tongrentang (referred to as Tongrentang Hong Kong) (to see list of samples, please see annex A). We took 500g samples of each product, sealed individually in secure pouches to prevent cross-contamination, and sent them to an accredited independent third party laboratory to test for pesticide residues.

1. Key Findings from Product Testing

1.1. 48 out of 65 Samples Tested Positive for Pesticides Residues, 26 with Banned Pesticides

We found 51 different pesticides in total, with 48 of 65 samples testing positive for at least one residue. Of the 25 Tongrentang samples (including seven samples from Tongrentang Hong Kong), 17 showed pesticide residues. Of the 10 samples from Yunnan Bai Yao, nine had pesticide residues (for detailed results see annex B).

A total of six pesticides banned in China were found from 26 samples, namely phorate, carbofuran, fipronil, methamidophos, aldicarb and ethoprophos (see table 1).

Banned Pesticide	Sample	Concentrations (mg/kg)
Phorate	Caizhilin Angelica sinensis	4
	Yunnan Bai Yao Angelica sinensis	1.8
	Tongrentang Hongkong Angelica sinensis	1.5
	Teanna San Qi Flower	0.77
	Zhangzhongjing Angelica sinensis	0.53
	Hongjitang Rhizoma Atractylodis Macro-cephalae	0.51
	Huqingyutang Angelica sinensis	0.18
	Tongrentang Beijing Rhizoma Atractylodis Macrocephalae	0.17
	Tasly Angelica sinensis	0.08
	Zhangzhongjing Adenophora stricta	0.06
	Tongrentang Beijing Radix Glehniae	0.02
Methamidophos	Tongrentang San Qi Flower	0.14
	Yunnan Bai Yao Chrysanthemum	0.03
Carbofuran	Tasly Wolfberry	0.2
	Tongrentang Hongkong Wolfberry	0.09
	Yunnan Bai Yao Wolfberry	0.06
	Huqingyutang Wolfberry	0.04
	Hongjitang Honeysuckle	0.04
	Yunnan Bai Yao Honeysuckle	0.02
	Tongrentang Beijing Honeysuckle	0.02
	Teanna San Qi Flower	0.02
	Tongrentang Hongkong Honeysuckle	0.02
	Huqingyutang Honeysuckle	0.01
Fipronil	Tongrentang Beijing Honeysuckle	0.05
	Tong Ren Tang Beijing Chrysanthemum	0.02
	Hongjitang Honeysuckle	0.05
	Zhangzhongjing Chrysanthemum	0.01
Aldicarb	Tongrentang Beijing Honeysuckle	0.04
Ethoprophos	Tongrentang Hongkong San Qi Powder	0.13
	Teanna San Qi Flower	0.04

Table 1: Banned pesticides found on samples

1.2. Cocktail of Pesticides

32 of the samples showed residue from three or more different pesticides. Of these, several samples had more than 20 different kinds of pesticides including Tongrentang Beijing's San Qi Flower (39 different kinds of pesticides), Zhangzhongjing's Chrysanthemum (35), Teanna's San Qi Flower (34), Tongrentang Hong Kong's San Qi Root Powder (32), Yunnan Bai Yao's Chrysanthemum (28), Tongrentang Beijing's Chrysamthemum (25), Yunnan Bai Yao's Honeysuckle and Huqingyutang's Chrysanthemum and San Qi Root Powder (each with 21), and Hongjitang's Honeysuckle had 20 different kinds of pesticides (see figure 2).

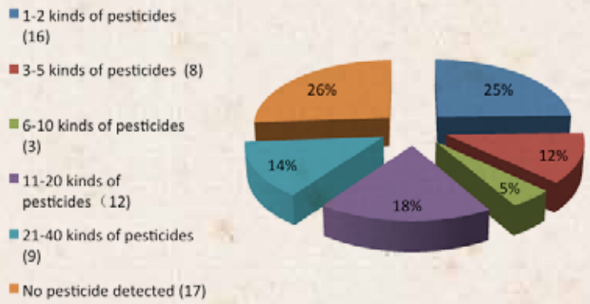
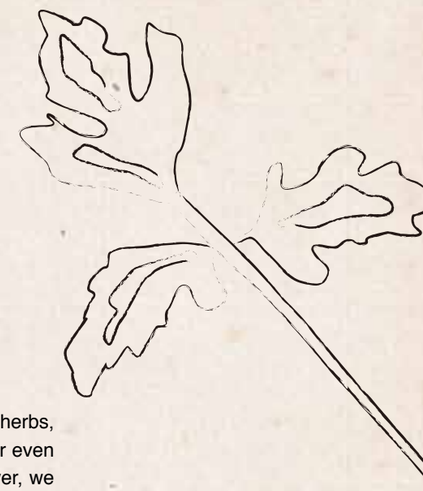


Figure 2: The cocktail of pesticides

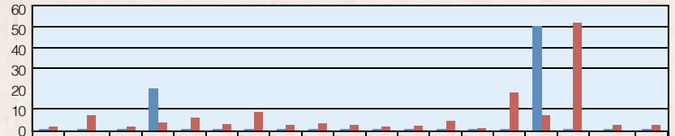


1.3. Several Samples Contained Particularly High Concentrations of Pesticides

Since China has few standards on maximum allowed pesticide residue levels on herbs, we used the EU MRLs as a comparative point. Some exceeded EU MRLs by 10 or even 100 times. For example, the EU MRL on thiophanate-methyl is 0.1 mg/kg. However, we found residue of this chemical on Tongrentang Beijing's San Qi Flower at a level of 51.6 mg/kg, which is 500 times above the MRL (figure 3). On Yunnan Bai Yao's Honeysuckle 11.3 mg/kg of this chemical was identified or, more than 100 times above the MRL (figure 4). On Teana's San Qi Flower sample, carbendazim/benomyl was found at a level of 15.5 mg/kg, or 570 times above the EU MRL (figure 5).

Worth noting is that we are fully aware EU MRLs cannot be considered a reliable guarantee for food safety. Even if pesticide residues of the crop are within the strictest MRLs, it does not mean the crop is necessarily safe. The establishment of MRLs takes farming practices into consideration, and is used for management purposes. Assumptions made by toxicity studies in the lab are that a certain level of pesticide exposure is acceptable or at least unavoidable. However, what has been often neglected in these studies is that long-term exposure of any dosage of chemical pesticides might pose a considerable threat to people's health.

Tongrentang Beijing's San Qi Flower



unit:mg/kg

	Boscalid	Carbendazim /Benomyl (sum)	Diethofencarb	Difenoconazole	Dimethomorph	Flusilazole	Iprodione	Metalaxyl	Mycloburtanil	Oxadixyl	Prochloraz	Propamocarb	Propiconazole	Pyraclostrobin	Pyrimethanil	Tebuconazole	Thiophanate-methyl	Triadimefon and triadimenol	Trifloxystrobin
EU MRL	0.5	0.1	0.05	20	0.05	0.05	0.1	0.1	0.05	0.02	0.2	0.2	0.1	0.05	0.1	50	0.1	0.2	0.05
Residue level	1.4	7.5	1.6	3.9	6.2	3	8.8	2.5	3.2	2.4	1.4	2.2	4.9	1.2	18.3	7.5	51.6	2.5	1.4

Figure 3: Tongrentang Beijing San Qi Flower: pesticide residue exceeding 1mg/kg in comparison to the EU MRL

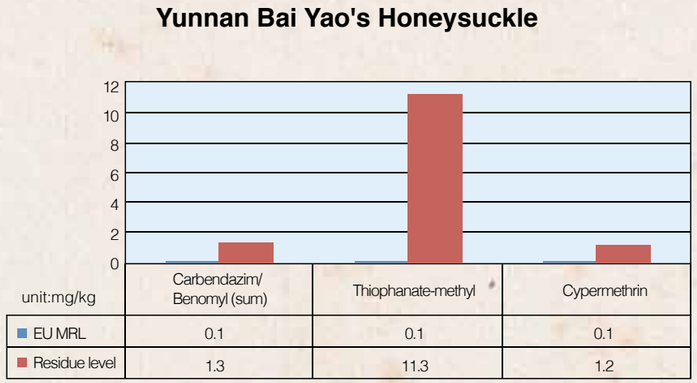


Figure 4: Yunnan Bai Yao's Honeysuckle: pesticide residue exceeding 1mg/kg compared to the EU MRL

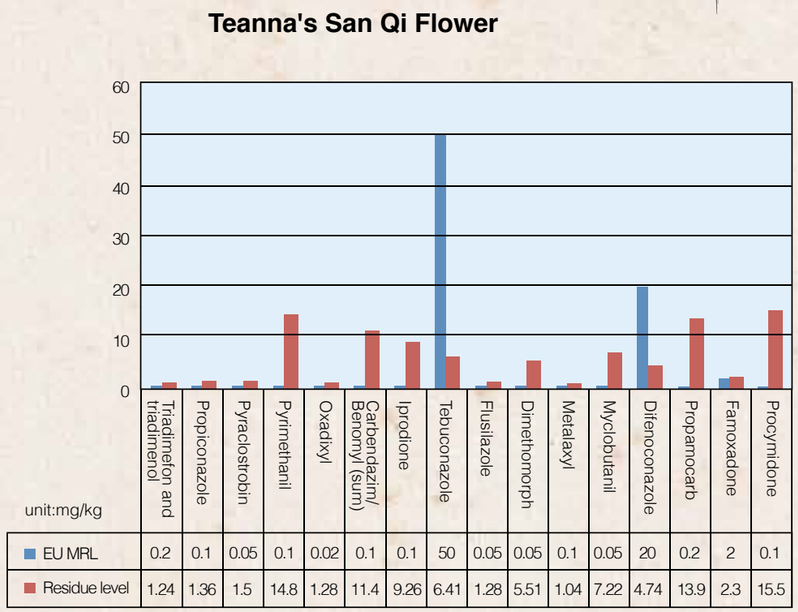


Figure 5: Teanna's San Qi Flower: pesticide residue exceeding 1mg/kg in comparison to the EU MRL

2. Health Hazards of Pesticides

2.1. Acute Poisoning

Acute poisoning of pesticide can happen when certain amounts of pesticides are ingested through the mouth, inhaled, or through any other kind of contact. The findings from a study that examined 3,271 cases of agricultural workers suffering from acute pesticide poisoning during the period 1998 to 2005, suggests that acute pesticide poisoning in the agricultural industry continues to be a significant problem . In countries where farmers wear less protective apparel, and the government doesn't provide proper guidance regarding pesticide use nor impose tight controls over the use of highly poisonous pesticides, cases of acute poisoning are often even higher.

Most alarming was the pesticides phorate, aldicarb, and carbofuran identified among our samples and classified as extremely or highly hazardous by the WHO [2] . 26 samples in total were found to have residues of pesticides in this class. Of the 11 samples tested positive for phorate, Yunnan Bai Yao's Angelica sinensis had a concentration of 1.8mg/kg, Caizhilin's Angelica sinensis with 4mg/kg and Hong Kong Tongrentang's Angelica sinensis with 1.5mg/kg (see table 1). The staggering results of this sample testing have caused us to have serious concerns regarding the farmers who applied these pesticides in the fields.

2.2. Chronic Poisoning

Long term exposure to pesticides or food with certain pesticide residues, may cause pesticides to accumulate inside the body, increasing the risk to people's health. Since the implication may be long-term, they are hard to identify and directly attribute to pesticide exposure. Thus the long-term effects of pesticides are habitually underestimated.

There is substantial evidence that repeated low-level exposure to organophosphate (e.g. chlorpyrifos), may affect neurodevelopment and growth in developing animals. This can be shown in the form of learning difficulties or problems with short-term memory, especially in some vulnerable groups such as children. There are hundreds of pesticides that have been identified as potential hormone disruptors . Recent studies show that pesticides such as carbendazim (found on 29 samples), cyhalothrin lambda (14 samples) and procymidone (12 samples), all frequently detected in our testing, could disrupt male hormones. The study selected 37 pesticides with high exposure risk to humans and found 23 that have been identified as anti-androgens, and could result in reproductive abnormalities. The study also pointed out that exposure to these anti-androgens may be harmful due to the fact these chemicals are typically applied as mixtures in order to increase effectiveness and prevent the development of resistant strains.

[2] WHO recommended classification of hazardous pesticides is based primarily on acute oral and dermal toxicity to the rat.

Investigation Into Production Of Chinese Herbal Products

1. Chemical-Intensive Chinese Herbs Farming

Using interviews conducted with local farmers, traders, and processing plant staff, we discovered that Chinese Herbs farming has well and truly joined the chemical-intensive agricultural sector. Pesticides are now heavily relied upon to prevent pests and diseases. In most cases, farmers apply pesticides according to their previous experience or with the advice from staff at pesticide stores. During the entire planting season, farmers are neither provided with professional instruction in terms of appropriate pesticide quantities, frequency, application time and correct intervals, nor have any awareness of ecological methods to control pests. Under these circumstances, many top Chinese herbs brands suffer from unprecedented man-made pollution.

2. Chinese Medicine Companies Lack an Effective Quality Control System

Currently in China there are a few large local medicine companies that have set up farms to grow Chinese herbs. However, these companies often require more than 1,000 different kinds of Chinese herbal ingredients and raw materials, but their own supply base is relatively small. As a result, Chinese medicine companies have to source their herbs from many different suppliers or via wholesalers. Such multichannel supply chains means Chinese medicine companies lack an effective quality control system for their medicinal ingredients.

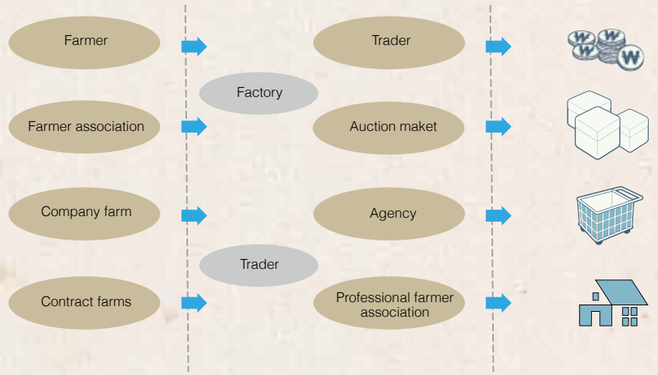


Figure 6: The Chinese Medicine Supply Chain: from Farm to Shop

From our interviews conducted in the County of Pingyi in the province of Shandong, the County Zhongning in Ningxia province and the County Wenshan in Yunnan province, we found that whatever business structure was in place – be it company + farm + farmers, or company + cooperative – the dominant core unit of Chinese herbs production is still small scale farms. Middlemen certainly pay little or no attention to the problem of pesticide use, meaning that Chinese herbs contaminated with pesticides easily enter the supply chain.

According to the Central Committee of the Communist Party of China's "Number One Document", the role of the leading agricultural enterprises is to push for the development of agriculture and enable farmers to have more income. However, such priorities shouldn't be a license for environmental pollution impunity. On the contrary, leading enterprises should undertake a responsibility to ensure safety and quality of the products by increasing farmer awareness and improving practices for environmental and health. Unfortunately, Chinese medicine companies are currently not taking responsibility for quality and safety control of the raw materials they buy. By neglecting their responsibility, these companies expose consumers to pesticide residue.

3. Too Many Safety "Gaps" in the Good Agricultural Practices (GAP) Policy of the Chinese Government

To regulate Chinese medicine production and to guarantee the quality of Chinese herbs, the State Food & Drug Administration (SFDA) set up the 'Good Agricultural Practices for Chinese Medicine Production' (as a pilot test) or GAP , which sets requirements for cultivation, production and processing. GAP also established standards on soil and irrigation for land cultivated with Chinese medical crops.

On pesticides, it recommends: "an integrated strategy should be adopted to prevent and control pests and diseases on medicinal plants," and "when it is necessary to use pesticides … the minimum effective dose should be used and also the most effective and least toxic pesticide that leaves the least residue should be chosen. Also pesticide residue and heavy metal pollution should be reduced to protect the environment (Article 16)." However, in reality there has been zero effective implementation or evaluation targets put in place for "the principle of integrated pest management and control" and "minimum effective dose", leaving them nothing but hollow words, and which then cannot be applied in practice to the farming of Chinese herbs.

CONCLUSION

The reliance on pesticides by the Chinese herbs farming industry is unfortunately only the tip of the iceberg when it comes to China's chemical-intensive agricultural model. The entire management of pesticide use in agriculture needs to be controlled more strictly and a rapid shift made towards ecological farming.

1. The Government at Different Levels Holds Poor Records for Guidance and Control of Pesticides

China's agricultural sector mainly consists of small-holder farmers. The country's 600 million farmers use almost two million tons of chemical pesticides every year. China urgently needs to establish a system that can raise awareness and build capacity among this large but scattered number of farmers in order to effectively control and reduce the use of pesticides. In rural areas, farmers largely rely on their own experience when it comes to buying and using pesticides. In the past, villages had agrotechnical extended service stations providing technical assistance to farmers. However, such stations are now being combined with a number of administrative services, such as family control, in many cases staff at these stations have also turned into the local pesticide agent. This has left them unable to play an objective role in the safe management and control of pesticides, as they perpetually lean to the promotion and sale of pesticides to farmers due to vested interests.

The supervision mechanism for pesticide residue also has far too many gaps. A lack of food safety mechanisms at the local level, inadequate monitoring and limited capacity for effective supervision, offer frequent opportunities for pesticides to enter the food chain. Too often it is only on the occurrence of a severe food scandal, that urgent measures are taken. China should move from crisis management to sound ecological agriculture practices.

2. Inadequate Support for Ecological Farming

The government lacks determination to reduce pesticide use and fails to sufficiently promote ecological farming through financial support and favorable measures.

Compared to industrial projects that can bring rapid economic and political benefits, the government generally attaches little importance to the agricultural sector, including the fight against and prevention of agricultural pollution. Worse, there is a lack of motivation to promote China as a leader in ecological agriculture. In the past few years spending in genetic engineering (GE) research and development (R&D) has far outstripped that of ecological farming, with 21 billion RMB dedicated to GE R&D projects[13,14,15,16] and only 700 million RMB (about 113 million US or 87 million Euros) in ecological farming[17,18] .

Despite the 2008 government proposed vision of environmental friendly agriculture, China's agriculture today still faces massive challenges when it comes to the use of chemical fertilizers and pesticides. In 2007, China's Ministry of Agriculture (MoA) initiated the 'greentech pilot zones', which claimed 20% of pesticide use could be reduced through physical and ecological measures to control pests. The reduction figure could be even higher at the optimum zones , ranging from 30%-50%. Up till now, there are 200 such greentech pilot zones but covering only 20% of the cultivated land. Due to insufficient investment in science research, there is a challenge posed to the development and promotion of greentech techniques. Consequently, the use of pesticides still remains dominant.

POLICY RECOMMENDATIONS

In order to ensure a clean environment for the future of Chinese herbs and sustainability of Chinese agriculture, central and local levels of government need to make serious progress on developing sustainable ecological farming. Greenpeace recommends that the Ministry of Agriculture, the State Food and Drug Administration, and all local related authorities:

1 Strengthen instructions regarding use and supervision of pesticides (and ensure that extremely or highly hazardous pesticides are effectively eliminated from use on Chinese herbs).

2 Fully implement the pesticide use reduction policy through a detailed and achievable timetable and plan, under a strict data supervision mechanism.

3 Increase funding and adopt preferential measures to promote ecological farming.

Food safety and environmental protection are the responsibility of governments, business, and agricultural organizations. Greenpeace calls on all major companies to monitor and control better their supply chains in order to improve product traceability and remove pesticide residue. Companies should accept to:

1 Monitor and give public information about the quantities and types of pesticide used in their supply chain.

2 Provide public information on methods to reduce pesticide use, including throughout the company's own production and their suppliers.

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Annex 1: National samples list

Number	Retailer	Sample	Purchase Date	Location	Price (500g)
1.	Beijing Tongrentang	American ginseng	2012/11/19	Beijing, U-Town Shopping Centre	¥800
2.	Beijing Tongrentang	Rhizoma Atractylodis Macrocephalae	2012/11/19	Beijing, U-Town Shopping Centre	¥88
3.	Beijing Tongrentang	Flos Carthami	2012/11/19	Beijing, U-Town Shopping Centre	¥158
4.	Beijing Tongrentang	Fructus Forsythiae	2012/11/19	Beijing, U-Town Shopping Centre	¥89
5.	Beijing Tongrentang	Codonopsis pilosula	2012/11/19	Beijing, U-Town Shopping Centre	¥200
6.	Beijing Tongrentang	Coptis chinensis Franch	2012/11/19	Beijing, U-Town Shopping Centre	¥162
7.	Beijing Tongrentang	Salvia miltiorrhiza	2012/11/19	Beijing, U-Town Shopping Centre	¥40
8.	Beijing Tongrentang	Liquorice Root	2012/11/19	Beijing, U-Town Shopping Centre	¥50
9.	Beijing Tongrentang	Milkvetch Root	2012/11/19	Beijing, U-Town Shopping Centre	¥56
10.	Beijing Tongrentang	Dyers Woad Leaf	2012/11/19	Beijing, U-Town Shopping Centre	¥35
11.	Beijing Tongrentang	Dendrobium officinale Kimura et Migo	2013/3/4	Beijing, Qianmen	¥5,500
12.	Beijing Tongrentang	San Qi Flower	2013/3/11	Beijing, Qianmen	¥1,400
13.	Beijing Tongrentang	Radix Glehniae	2013/3/11	Beijing, Qianmen	¥70
14.	Beijing Tongrentang	Isatis root	2013/3/11	Beijing, Qianmen	¥50
15.	Beijing Tongrentang	Platycodon grandiflorus	2013/3/11	Beijing, Qianmen	¥130
16.	Beijing Tongrentang	Wolfberry	2012/7/25	Beijing, U-Town Shopping Centre	¥100
17.	Beijing Tongrentang	Honeysuckle	2012/7/25	Beijing, U-Town Shopping Centre	¥417
18.	Beijing Tongrentang	Chrysanthemum	2012/7/25	Beijing, U-Town Shopping Centre	¥230
19.	Beijing Tongrentang (Hong Kong)	Honeysuckle	2013/3/13	Hong Kong, Central District	HKD480
20.	Beijing Tongrentang (Hong Kong)	Angelica sinensis	2013/3/13	Hong Kong, Central District	HKD320
21.	Beijing Tongrentang (Hong Kong)	Isatis root	2013/3/13	Hong Kong, Central District	HKD320
22.	Beijing Tongrentang (Hong Kong)	Platycodon grandiflorus	2013/3/13	Hong Kong, Central District	HKD240
23.	Beijing Tongrentang (Hong Kong)	Liquorice Root	2013/3/13	Hong Kong, Central District	HKD368
24.	Beijing Tongrentang (Hong Kong)	San Qi Powder	2013/4/23	Hong Kong, Central District	HKD2240
25.	Beijing Tongrentang (Hong Kong)	Wolfberry	2013/4/23	Hong Kong, Central District	HKD368
26.	Yunnan Bai Yao	Chrysanthemum	2012/11/22	Xihua chain store, Kunming, Yunnan	¥350
27.	Yunnan Bai Yao	Honeysuckle	2012/11/22	Xihua chain store, Kunming, Yunnan	¥993
28.	Yunnan Bai Yao	Liquorice Root	2012/11/22	Xihua chain store, Kunming, Yunnan	¥119
29.	Yunnan Bai Yao	Flos Carthami	2012/11/22	Xihua chain store, Kunming, Yunnan	¥750
30.	Yunnan Bai Yao	Angelica sinensis	2012/11/22	Xihua chain store, Kunming, Yunnan	¥241
31.	Yunnan Bai Yao	Panax quinquefolius	2012/11/22	Xihua chain store, Kunming, Yunnan	¥1,050

Number	Retailer	Sample	Purchase Date	Location	Price (500g)
32.	Yunnan Bai Yao	Dried Lilybulb	2012/11/22	Xihua chain store, Kunming, Yunnan	¥120
33.	Yunnan Bai Yao	Dwarf Lilyturf Tuber	2012/11/22	Xihua chain store, Kunming, Yunnan	¥180
34.	Yunnan Bai Yao	Sterculia lychnophora	2012/11/22	Xihua chain store, Kunming, Yunnan	¥220
35.	Yunnan Bai Yao	Wolfberry	2012/11/22	Xihua chain store, Kunming, Yunnan	¥135
36.	Daphne(Teanna)	San Qi Flower	2013/1/27	Yunnan Bai Yao pharmacy, Kunming, Yunnan	¥800
37.	Daphne(Teanna)	San Qi Powder	2013/1/27	Yunnan Bai Yao pharmacy, Kunming, Yunnan	¥900
38.	Guangdong Caizhilin	San Qi Root	2013/3/10	Tianmao branch, Guangzhou	¥1,318
39.	Guangdong Caizhilin	Dwarf Lilyturf Tuber	2013/3/10	Tianmao branch, Guangzhou	¥137
40.	Guangdong Caizhilin	Angelica sinensis	2013/3/10	Tianmao branch, Guangzhou	¥160
41.	Guangdong Caizhilin	Radix Glehniae	2013/3/10	Tianmao branch, Guangzhou	¥96
42.	Guangdong Caizhilin	Unprocessed Rehmannia root	2013/3/10	Tianmao branch, Guangzhou	¥33
43.	Hangzhou Huqingyutang	Chrysanthemum	2013/3/10	95 Dajing Lane, Shangcheng District, Hangzhou	¥35
44.	Hangzhou Huqingyutang	Honeysuckle	2013/3/10	95 Dajing Lane, Shangcheng District, Hangzhou	¥390
45.	Hangzhou Huqingyutang	San Qi Powder	2013/3/10	95 Dajing Lane, Shangcheng District, Hangzhou	¥780
46.	Hangzhou Huqingyutang	Wolfberry	2013/3/10	95 Dajing Lane, Shangcheng District, Hangzhou	¥100
47.	Hangzhou Huqingyutang	Dried Lilybulb	2013/3/10	95 Dajing Lane, Shangcheng District, Hangzhou	¥99
48.	Hangzhou Huqingyutang	Dwarf Lilyturf Tuber	2013/3/10	95 Dajing Lane, Shangcheng District, Hangzhou	¥277
49.	Hangzhou Huqingyutang	Angelica sinensis	2013/3/10	95 Dajing Lane, Shangcheng District, Hangzhou	¥78
50.	Hangzhou Huqingyutang	Liquorice Root	2013/3/10	95 Dajing Lane, Shangcheng District, Hangzhou	¥35
51.	Hangzhou Huqingyutang	Milkvetch Root	2013/3/10	95 Dajing Lane, Shangcheng District, Hangzhou	¥100
52.	Henan Zhangzhongjing	Chrysanthemum	2013/3/27	Zhengzhou city centre branch, Henan	¥167
53.	Henan Zhangzhongjing	Unprocessed Rehmannia root	2013/3/27	Zhengzhou city centre branch, Henan	¥20
54.	Henan Zhangzhongjing	Adenophora stricta	2013/3/27	Zhengzhou city centre branch, Henan	¥28
55.	Henan Zhangzhongjing	Angelica sinensis	2013/3/27	Zhengzhou city centre branch, Henan	¥55
56.	Henan Zhangzhongjing	Chinese date	2013/3/27	Zhengzhou city centre branch, Henan	¥33
57.	Hunan Jiuzhitang	Dried Lilybulb	2013/3/5	Yingwan Road pharmacy, Changsha, Hunan	¥50
58.	Hunan Jiuzhitang	Milkvetch Root	2013/3/5	Yingwan Road pharmacy, Changsha, Hunan	¥50
59.	Jinan Hongjitang	Honeysuckle	2013/3/20	Hongjitang pharmacy chain Shenrong Store, Jinan, Shandong	¥128
60.	Jinan Hongjitang	Dyers Woad Leaf	2013/3/20	Hongjitang pharmacy chain Shenrong Store, Jinan, Shandong	¥18
61.	Jinan Hongjitang	Isatis root	2013/3/20	Hongjitang pharmacy chain Shenrong Store, Jinan, Shandong	¥20
62.	Jinan Hongjitang	Platycodon grandiflorus	2013/3/20	Hongjitang pharmacy chain Shenrong Store, Jinan, Shandong	¥80
63.	Jinan Hongjitang	Rhizoma Atractylodis Macrocephalae	2013/3/20	Hongjitang pharmacy chain Shenrong, Jinan, Shandong	¥36
64.	Tianjin Tasly	Angelica sinensis	2013/3/11	Wandezhuang branch, Nankai district, Tianjin	¥65
65.	Tianjin Tasly	Wolfberry	2013/3/11	Wandezhuang branch, Nankai district, Tianjin	¥55

Annex 2: National samples tested result

WHO classification explanation:
Ia = Extremely hazardous; Ib = Highly hazardous; II = Moderately hazardous;
III = slightly hazardous; U = Unlikely to present acute hazard in normal use;
O = Obsolete as pesticide, not classified; *=not listed.
MRL EU "-": No specific product category for this Chinese product, therefore, MRL not listed

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
1	Tongrentang (BJ)	American ginseng	1	Procymidone	0.03	0.1		U
2	Tongrentang (BJ)	Rhizoma Atractylodis Macrocephalae	1	Phorate	0.17	0.05	Y	*
3	Tongrentang (BJ)	Flos Carthami	2	DDE,p,p'-	0.02	0.5	Y	II
				Permethrin	0.05	0.1		II
4	Tongrentang (BJ)	Fructus Forsythiae	Not Detected					
5	Tongrentang (BJ)	Codonopsis pilosula	Not Detected					
6	Tongrentang (BJ)	Coptis chinensis Franch	Not Detected					
7	Tongrentang (BJ)	Salvia miltiorrhiza	Not Detected					
8	Tongrentang (BJ)	Liquorice Root	Not Detected					
9	Tongrentang (BJ)	Milkvetch Root	Not Detected					
10	Tongrentang (BJ)	Dyers Woad Leaf	3	Chlorpyrifos	0.1	0.5		II
				Cyhalothrin lambda	0.02	1		II
				Cypermethrin	0.31	0.1		II
11	Tongrentang (BJ)	Wolfberry	14	Cyhalothrin lambda	0.02	0.1		II
				Cypermethrin	0.07	0.5		II
				Fenpropathrin	0.01	0.01		II
				Fenvalerate & Esfenvalerate (Sum of RS&SR Isomers)	0.04	0.02		II
				Triazophos	0.01	0.01		Ib
				Acetamiprid	0.31	0.15		*
				Carbendazim/Benomyl (sum)	0.01	0.3		U
				Chlorpyrifos	0.02	0.5		II
				Clofentezine	0.03	0.3		III
				Difenoconazole	0.08	2		II
				Imidacloprid	0.07	0.5		II
				Propargite	0.21	2		III
				Pyridaben	0.01	0.3		II
				Triadimefon and triadimenol	0.01	1		II
12	Tongrentang (BJ)	Honeysuckle	11	Acetamiprid	0.33	0.1		*
				Aldicarb (Sum)	0.04	0.05	Y	Ia

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
12	Tongrentang (BJ)	Honeysuckle	11	Carbendazim/Benomyl (sum)	0.14	0.1		U
				Carbofuran (Sum)	0.02	0.05	Y	Ib
				Chlorpyrifos	0.01	0.5		II
				Fipronil	0.05	0.005	Y	II
				Imidacloprid	0.21	0.05		II
				Thiophanate-methyl	0.12	0.1		U
				Cyhalothrin lambda	0.02	1		II
				Cypermethrin	0.12	0.1		II
				Fenvalerate & Esfenvalerate (Sum of RS&SR Isomers)	0.04	0.05		II
13	Tongrentang (BJ)	Chrysanthemum	25	Acetamiprid	0.31	0.1		*
				Carbendazim/Benomyl (sum)	0.28	0.1		U
				Chlorpyrifos	0.11	0.5		II
				Cyromazine	0.08	0.05		III
				Diethofencarb	0.22	0.05		U
				Difenoconazole	0.01	20		II
				Dimethomorph	0.31	0.05		U
				Fipronil	0.02	0.005	Y	II
				Hexaflumuron	0.04	0.01		U
				Imidacloprid	0.11	0.05		II
				Iprodione	0.26	0.1		III
				Metalaxyl	0.23	0.1		II
				Myclobutanil	0.01	0.05		II
				Oxadixyl	0.15	0.02		II
				Prochloraz	0.02	0.2		II
				Propamocarb	2.2	0.2		U
				Propargite	0.07	0.02		III
				Pyraclostrobin	0.01	0.05		*
				Pyridaben	0.07	0.05		II
				Pyrimethanil	1.8	0.1		III
				Tebuconazole	0.03	50		II
				Bifenthrin	0.08	0.1		II
				Cypermethrin	0.05	0.1		II
				Endosulfan (Sum)	0.2	0.1		II

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
13	Tongrentang (BJ)	Chrysanthemum	25	Procymidone	0.07	0.1		U
14	Tongrentang (BJ)	Dendrobium officinale Kimura et Migo	16	Triadimefon and triadimenol	0.07	0.2		II
				Propiconazole	0.05	0.1		II
				Imidacloprid	0.01	0.05		II
				Acetamiprid	0.02	0.1		*
				Buprofezin	0.02	0.05		III
				Carbendazim/Benomyl (sum)	0.08	0.1		U
				Iprodione	0.03	0.1		III
				Tebuconazole	0.08	50		II
				Chlorpyrifos	0.06	0.1		II
				Fluopicolide	0.03	0.02		U
				Dimethomorph	0.09	0.05		U
				Thiophanate-methyl	0.11	0.1		U
				Myclobutanil	0.01	0.05		II
				Difenoconazole	0.03	20		II
				Propamocarb	0.31	0.2		U
				Fenpropathrin	0.05	0.02		II
15	Tongrentang (BJ)	San Qi Flower	39	Acetamiprid	0.01	0.1		*
				Amitraz	0.02	0.1		II
				Azoxystrobin	0.66	50		U
				Boscalid	1.4	0.5		U
				Buprofezin	0.03	0.05		III
				Carbendazim/Benomyl (sum)	7.5	0.1		U
				Chlorobenzuron	0.03			*
				Chlorpyrifos	0.07	0.5		II
				Cyprodinil	0.03	0.05		*
				Diethofencarb	1.6	0.05		U
				Difenoconazole	3.9	20		II
				Dimethomorph	6.2	0.05		U
				Diniconazole	0.67	0.05		II
				Flusilazole	3	0.05		U
				Hexaconazole	0.05	0.05		III
				Hexaflumuron	0.02	0.01		U
				Imidacloprid	0.03	0.05		II

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
15	Tongrentang (BJ)	San Qi Flower	39	Iprodione	8.8	0.1		III
				Metalaxyl	2.5	0.1		II
				Methamidophos	0.14	0.05	Y	Ib
				Myclobutanil	3.2	0.05		II
				Oxadixyl	2.4	0.02		II
				Penconazole	0.1	0.1		III
				Phoxim	0.01	0.1		II
				Prochloraz	1.4	0.2		II
				Propamocarb	2.2	0.2		U
				Propargite	0.02	0.02		III
				Propiconazole	4.9	0.1		II
				Pyraclostrobin	1.2	0.05		*
				Pyridaben	0.01	0.05		II
				Pyrimethanil	18.3	0.1		III
				Tebuconazole	7.5	50		II
				Thiophanate-methyl	51.6	0.1		U
				Triadimefon and triadimenol	2.5	0.2		II
				Trifloxystrobin	1.4	0.05		U
				Cyfluthrin	0.21	0.1		Ib
				Cyhalothrin lambda	0.14	1		II
				Cypermethrin	0.98	0.1		II
				Quintozene	0.18	0.1		U
16	Tongrentang (BJ)	Radix Glehniae	10	Carbendazim/Benomyl (sum)	0.15	0.1		U
				Dimethomorph	0.02	0.05		U
				Iprodione	0.05	0.1		III
				Myclobutanil	0.02	0.05		II
				Phorate (Sum)	0.02	0.05	Y	Ia
				Propamocarb	0.04	0.2		U
				Propiconazole	0.01	0.1		II
				Pyrimethanil	0.1	0.1		III
				Tebuconazole	0.02	50		II
				Thiophanate-methyl	0.22	0.1		U
17	Tongrentang (BJ)	Isatis root	3	Carbendazim/Benomyl (sum)	0.03	0.1		U
				Pyrimethanil	0.03	0.1		III

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
17	Tongrentang (BJ)	Isatis root	3	Thiophanate-methyl	0.03	0.1		U
18	Tongrentang (BJ)	Platycodon grandiflorus	3	Carbendazim/Benomyl (sum)	0.02	0.1		U
				Pyrimethanil	0.02	0.1		III
				Thiophanate-methyl	0.01	0.1		U
19	Tongrentang (HK)	Honeysuckle	12	Acetamiprid	0.27	0.1		*
				Carbendazim/Benomyl (sum)	0.07	0.1		U
				Carbofuran (Sum)	0.02	0.05	Y	Ib
				Chlorpyrifos	0.02	0.5		II
				Omethoate	0.01	0.1		Ib
				Imidacloprid	0.16	0.05		II
				Myclobutanil	0.01	0.05		II
				Thiophanate-methyl	0.1	0.1		U
				Triadimenol	0.01	0.2		II
				Bifenthrin	0.02	0.1		II
				Cyhalothrin lambda	0.12	1		II
				Cypermethrin	0.14	0.1		II
20	Tongrentang (HK)	Angelica sinensis	1	Phorate (Sum)	1.5	0.05	Y	Ia
21	Tongrentang (HK)	isatis root	Not Detected					
22	Tongrentang (HK)	Platycodon grandiflorus	Not Detected					
23	Tongrentang (HK)	Liquorice Root	1	Trifluralin	0.03	1		U
24	Tongrentang (HK)	San Qi Powder	31	Azoxystrobin	0.07	50		U
				Boscalid	0.16	0.5		U
				Carbendazim/ Benomyl(sum)	0.12	0.1		U
				Chlorpyrifos	0.04	0.5		II
				Diethofencarb	0.01	0.05		U
				Difenoconazole	0.42	20		II
				Dimethomorph	0.79	0.05		U
				Diniconazole	0.02	0.05		II
				Ethoprophos	0.13	0.02	Y	Ia
				Flusilazole	0.05	0.05		II
				Hexaconazole	0.01	0.05		III
				Imidacloprid	0.01	0.05		II
				Iprodione	0.34	0.1		III
				Metalaxyl	0.07	0.1		II

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
24	Tongrentang (HK)	San Qi Powder	31	Myclobutanil	0.04	0.05		II
				Oxadixyl	0.1	0.02		II
				Propamocarb	0.04	0.2		U
				Propham	0.12	0.1		
				Propiconazole	0.02	0.1		II
				Pyraclostrobin	0.05	0.05		*
				Pyrimethanil	0.06	0.1		III
				Tebuconazole	0.09	50		II
				Thiophanate-methyl	0.62	0.1		U
				Triadimefon and triadimenol	0.16	0.2		II
				Cyhalothrin lambda	0.02	1		II
				Famoxadone	0.04	0.05		U
				Methyl-Pentachloro-phenyl sulfide	0.02	0		*
				Pentachloroaniline	0.02	0.01		
				Pentachloroben-zene	0.01	0.01		
				Procymidone	1.9	0.1		U
				Quintozene (Sum)	0.31	0.1		u
25	Tongrentang (HK)	Wolfberry	12	Acetamiprid	1	0.15		*
				Amitraz(sum)	0.03	0.05		II
				Carbendazim/ Benomyl(sum)	0.13	0.3		U
				Carbofuran(Sum)	0.09	0.01	Y	Ib
				Imidacloprid	0.43	0.5		II
				Propargite	0.09	2		III
				Pyridaben	0.01	0.3		II
				Triadimefon and triadimenol	0.09	1		II
				Cyhalothrin lambda	0.04	0.1		II
				Cypermethrin	0.2	0.5		II
				Fenpropathrin	0.05	0.01		II
				Fenvalerate & Es-fenvalerate (Sum of RS&SR Isomers)	0.05	0.02		II
26	Yunnan Bai Yao	Chrysanthemum	28	Abamectin (Sum)	0.04	0.02		*
				Acetamiprid	1.9	0.1		*
				Avermectin B1a	0.04	0.02		*
				Carbendazim/Beno-myl (sum)	2	0.1		U

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
26	Yunnan Bai Yao	Chrysanthemum	28	Chlorfluazuron	0.04	0.01		U
				Chlorpyrifos	0.06	0.5		II
				Diethofencarb	0.03	0.05		U
				Difenoconazole	0.33	20		II
				Dimethoate	0.03	0.1		II
				Dimethomorph	2.6	0.05		U
				Imidacloprid	0.08	0.05		II
				Iprodione	0.75	0.1		III
				Metalaxyl	0.2	0.1		II
				Methamidophos	0.03	0.05	Y	Ib
				Myclobutanil	0.05	0.05		II
				Oxadixyl	0.32	0.02		II
				Prochloraz	0.22	0.2		II
				Propamocarb	4.1	0.2		U
				Propargite	0.09	0.02		III
				Propiconazole	0.06	0.1		II
				Pyraclostrobin	0.08	0.05		*
				Pyridaben	0.58	0.05		II
				Pyrimethanil	2.9	0.1		III
				Thiophanate-methyl	3.9	0.1		U
				Triadimefon and triadimenol	0.46	0.2		II
				Cypermethrin	0.06	0.1		II
				Endosulfan (Sum)	1.1	0.1		II
				Procymidone	0.62	0.1		U
27	Yunnan Bai Yao	Honeysuckle	21	Abamectin (Sum)	0.01	0.02		*
				Acetamiprid	0.04	0.1		*
				Avermectin B1a	0.01	0.02		*
				Carbendazim/Beno-myl (sum)	1.3	0.1		U
				Carbofuran (Sum)	0.02	0.05	Y	Ib
				Chlorpyrifos	0.03	0.5		II
				Difenoconazole	0.01	20		II
				Dimethomorph	0.01	0.05		U
				Flusilazole	0.02	0.05		II
				Hexaflumuron	0.02	0.01		U

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
27	Yunnan Bai Yao	Honeysuckle	21	Imidacloprid	0.16	0.05		II
				Methomyl	0.04	0.1		Ib
				Phoxim	0.02	0.1		II
				Propamocarb	0.32	0.2		U
				Pyridaben	0.18	0.05		II
				Thiophanate-methyl	11.3	0.1		U
				Triadimefon and triadimenol	0.08	0.2		II
				Cyhalothrin lambda	1	1		II
				Cypermethrin	1.2	0.1		II
				Fenpropathrin	0.04	0.02		II
				Kresoxim-methyl	0.02	0.1		*
28	Yunnan Bai Yao	Liquorice Root	2	Carbendazim/Benomyl (sum)	0.04	0.1		U
				Propamocarb	0.16	0.2		U
29	Yunnan Bai Yao	Flos Carthami	3	Carbendazim/Benomyl (sum)	0.01	0.1		U
				Propamocarb	0.03	0.2		U
				Triadimefon and triadimenol	0.02	0.2		II
30	Yunnan Bai Yao	Angelica sinensis	2	Propamocarb	0.02	0.2		U
				Phorate (Sum)	1.8	0.05	Y	Ia
31	Yunnan Bai Yao	Panax quinquefolius	2	Procymidone	0.02	0.1		U
				Quintozene	0.07	0.1		U
32	Yunnan Bai Yao	Dried Lilybulb	5	Carbendazim/Benomyl (sum)	0.06	-		U
				Chlorpyrifos	0.07	-		II
				Prochloraz	0.06	-		II
				Thiophanate-methyl	0.06	-		U
				Procymidone	0.05	-		U
33	Yunnan Bai Yao	Dwarf Lilyturf Tuber	1	Paclobutrazol	0.06	0.02		II
34	Yunnan Bai Yao	Sterculia lychnophora	Not Detected					
35	Yunnan Bai Yao	Wolfberry	13	Acetamiprid	0.45	0.15		*
				Amitraz	0.02	0.05		II
				Carbendazim/Benomyl (sum)	0.02	0.3		U
				Carbofuran (Sum)	0.06	0.01	Y	Ib
				Chlorpyrifos	0.05	0.5		II
				Clofentezine	0.02	0.3		III

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
35	Yunnan Bai Yao	Wolfberry	13	Difenoconazole	0.03	2		II
				Imidacloprid	0.12	0.5		II
				Propargite	0.31	2		III
				Pyridaben	0.04	0.3		II
				Thiophanate-methyl	0.19	1		U
				Cyhalothrin lambda	0.04	0.1		II
				Fenvalerate & Esfenvalerate (Sum of RS&SR Isomers)	0.04	0.02		II
				Triadimefon and triadimenol	1.24	0.2		II
				Propiconazole	1.36	0.1		II
				Diethofencarb	0.28	0.05		U
				Carbofuran (Sum)	0.02	0.05	Y	Ib
				Amitraz	0.01	0.1		II
				Pyraclostrobin	1.5	0.05		*
				Imidacloprid	0.63	0.05		II
				Prochloraz	0.12	0.2		II
				Pyrimethanil	14.8	0.1		III
				Oxadixyl	1.28	0.02		II
				Buprofezin	0.01	0.05		III
				Thiabendazole	0.13	0.1		*
36	Daphne(Teanna)	San Qi Flower	34	Carbendazim/Benomyl (sum)	11.4	0.1		U
				Hexaconazole	0.06	0.05		III
				Iprodione	9.26	0.1		III
				Tebuconazole	6.41	50		II
				Chlorpyrifos	0.37	0.5		II
				Chlorfluazuron	0.06	0.01		U
				Flusilazole	1.28	0.05		II
				Dimethomorph	5.51	0.05		U
				Phorate	0.77	0.05	Y	*
				Metalaxyl	1.04	0.1		II
				Trifloxystrobin	0.05	0.05		U
				Azoxystrobin	0.71	50		U
				Myclobutanil	7.22	0.05		II
				Difenoconazole	4.74	20		II

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
36	Daphne(Teanna)	San Qi Flower	34	Phoxim	0.51	0.1		II
				Propamocarb	13.9	0.2		U
				Famoxadone	2.3	2		U
				Cyhalothrin lambda	0.36	1		II
				Quintozene	0.49	0.1		U
				Cyfluthrin	0.09	0.1		Ib
				Cypermethrin	0.1	0.1		II
				Procymidone	15.5	0.1		U
37	Daphne	San Qi Powder	19	Triadimefon and triadimenol	0.09	0.2		II
				Propiconazole	0.02	0.1		II
				Diethofencarb	0.04	0.05		U
				Imidacloprid	0.01	0.05		II
				Pyrimethanil	0.13	0.1		III
				Oxadixyl	0.02	0.02		II
				Carbendazim/Benomyl (sum)	0.14	0.1		U
				Iprodione	0.05	0.1		III
				Tebuconazole	0.04	50		II
				Flusilazole	0.05	0.05		II
				Ethoprophos	0.04	0.02	Y	Ia
				Dimethomorph	0.2	0.05		U
				Thiophanate-methyl	0.31	0.1		U
				Metalaxyl	0.02	0.1		II
				Myclobutanil	0.04	0.05		II
				Difenoconazole	0.32	20		II
				Propamocarb	0.15	0.2		U
				Quintozene	0.02	0.1		U
				Procymidone	0.92	0.1		U
38	Caizhilin Guangdong	San Qi Root	15	Triadimefon and triadimenol	0.13	0.2		II
				Propiconazole	0.01	0.1		II
				Pyraclostrobin	0.02	0.05		*
				Boscalid	0.01	0.5		U
				Pyrimethanil	0.04	0.1		III
				Oxadixyl	0.02	0.02		II
				Carbendazim/Benomyl	0.02	0.1		U

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
38	Caizhilin Guangdong	San Qi Root	15	Iprodione	0.05	0.1		III
				Tebuconazole	0.01	50		II
				Dimethomorph	0.05	0.05		U
				Thiophanate-methyl	0.03	0.1		U
				Difenoconazole	0.02	20		II
				Quintozene	0.03	0.1		U
				Dicloran	0.05	0.01		U
				Procymidone	0.09	0.1		U
39	Caizhilin Guangdong	Dwarf Lilyturf Tuber	1	Paclobutrazol	0.04	0.02		II
40	Caizhilin Guangdong	Angelica sinensis	1	Phorate	4	0.05	Y	Ia
41	Caizhilin Guangdong	Radix Glehniae	3	Triazophos	0.02	0.02		Ib
				Permethrin	0.07	0.1		II
				Tetramethrin	0.05	0.01		U
42	Caizhilin Guangdong	Unprocessed rehmannia root	Not Detected					
43	Huqingyutang Zhejiang	Chrysanthemum	21	Acetamiprid	0.94	0.1		*
				Carbendazim/Benomyl (sum)	0.5	0.1		U
				Chlorpyrifos	0.06	0.5		II
				Diethofencarb	0.01	0.05		U
				Difenoconazole	0.03	20		II
				Dimethomorph	0.56	0.05		U
				Imidacloprid	0.27	0.05		II
				Iprodione	0.03	0.1		III
				Metalaxyl	0.05	0.1		II
				Myclobutanil	0.03	0.05		II
				Propamocarb	0.51	0.2		U
				Propargite	0.04	0.02		III
				Pyridaben	0.77	0.05		II
				Pyrimethanil	0.48	0.1		III
				Thiophanate-methyl	1.6	0.1		U
				Triadimefon and triadimenol	0.44	0.2		II
				Bifenthrin	0.33	0.1		II
				Chlorothalonil	0.07	0.1		U
				Cypermethrin	0.57	0.1		II

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
43	Huqingyutang Zhejiang	Chrysanthemum	21	Endosulfan (Sum)	1.6	0.1		II
				Procymidone	0.56	0.1		U
44	Huqingyutang Zhejiang	Honeysuckle	18	Abamectin	0.02	0.02		*
				Acetamiprid	0.14	0.1		*
				Carbendazim/Benomyl (sum)	0.32	0.1		U
				Carbofuran (Sum)	0.01	0.05	Y	Ib
				Emamectin(Sum)	0.02	0.02		*
				Flusilazole	0.07	0.05		II
				Hexaconazole	0.04	0.05		III
				Hexaflumuron	0.04	0.01		U
				Imidacloprid	0.01	0.05		II
				Methomyl/ Thiodicarb(sum)	0.04	0.1		Ib
				Phoxim	0.02	0.1		II
				Propamocarb	0.02	0.2		U
				Pyridaben	0.01	0.05		II
				Tebuconazole	0.03	50		II
				Thiophanate-methyl	0.38	0.1		U
				Triadimefon and triadimenol	0.006	0.2		II
				Cyhalothrin lambda	0.19	1		II
				Cypermethrin	0.21	0.1		II
45	Huqingyutang Zhejiang	San Qi Powder	21	Azoxystrobin	0.01	50		U
				Boscalid	0.03	0.5		U
				Carbendazim/Benomyl (sum)	0.05	0.1		U
				Chlorpyrifos	0.02	0.5		II
				Diethofencarb	0.01	0.05		U
				Difenoconazole	0.08	20		II
				Dimethomorph	0.15	0.05		U
				Flusilazole	0.02	0.05		II
				Iprodione	0.12	0.1		III
				Myclobutanil	0.01	0.05		II
				Oxadixyl	0.03	0.02		II
				Propamocarb	0.02	0.2		U
				Propiconazole	0.02	0.1		II
				Pyraclostrobin	0.01	0.05		*

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
45	Huqingyutang Zhejiang	San Qi Powder	21	Pyrimethanil	0.06	0.1		III
				Tebuconazole	0.05	50		II
				Thiophanate-methyl	0.33	0.1		U
				Triadimenol	0.08	0.2		II
				Butachlor	0.03	0.01		U
				Procymidone	0.5	0.1		U
				Quintozene	0.04	0.1		u
46	Huqingyutang Zhejiang	Wolfberry	15	Acetamiprid	0.77	0.15		*
				Carbendazim/Benomyl (sum)	0.08	0.3		U
				Carbofuran (Sum)	0.04	0.01	Y	Ib
				Chlorpyrifos	0.08	0.5		II
				Clofentezine	0.03	0.3		III
				Difenoconazole	0.08	2		II
				Imidacloprid	0.13	0.5		II
				Prochloraz	0.01	0.05		II
				Propargite	0.06	2		III
				Propiconazole	0.1	0.05		II
				Pyridaben	0.03	0.3		II
				Thiophanate-methyl	0.5	1		U
				Cyhalothrin lambda	0.16	0.1		II
				Cypermethrin	0.16	0.5		II
				Fenvalerate & Esfenvalerate (Sum of RS&SR Isomers)	0.05	0.02		II
47	Huqingyutang Zhejiang	Dried Lilybulb	4	Acetamiprid	0.01	-		*
				Carbendazim/Benomyl (sum)	0.02	-		U
				Dimethomorph	0.1	-		U
				Propiconazole	0.02	-		II
48	Huqingyutang Zhejiang	Dwarf Lilyturf Tuber	1	Propiconazole	0.01	0.1		II
49	Huqingyutang Zhejiang	Angelica sinensis	1	Phorate (Sum)	0.18	0.05	Y	Ia
50	Huqingyutang Zhejiang	Liquorice Root	Not Detected					
51	Huqingyutang Zhejiang	Milkvetch Root	Not Detected					
52	Tasly(Tianshili), Tianjin	Angelica sinensis	2	Phorate (Sum)	0.08	0.05	Y	Ia
				Triazophos	0.11	0.02		Ib
53	Tasly(Tianshili), Tianjin	Wolfberry	13	2,4'-Formoxylidid	0.03	0.01		*

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
53	Tianshili, Tianjin	Wolfberry	13	Acetamiprid	3.5	0.15		*
				Carbendazim/Benomyl (sum)	0.39	0.3		U
				Carbofuran (Sum)	0.2	0.01	Y	Ib
				Difenoconazole	0.02	2		II
				Imidacloprid	0.75	0.5		II
				Propargite	0.06	2		III
				Pyridaben	0.03	0.3		II
				Thiophanate-methyl	0.12	1		U
				Triadimenol	0.12	1		II
				Cyhalothrin lambda	0.03	0.1		II
				Cypermethrin	0.12	0.5		II
				Profenofos	0.02	10		II
54	Jiuzhitang, Hunan	Dried Lilybulb	Not Detected					
55	Jiuzhitang, Hunan	Milkvetch Root	Not Detected					
56	Hongjitang Shandong	Honeysuckle	19	Acetamiprid	0.28	0.1		*
				Carbendazim/Benomyl (sum)	0.28	0.1		U
				Carbofuran (Sum)	0.04	0.05	Y	Ib
				Chlorpyrifos	0.05	0.5		II
				Omethoate	0.34	0.1		Ib
				Emamectin(Sum)	0.03	0.02		*
				Fipronil	0.05	0.005	Y	II
				Imidacloprid	0.08	0.05		II
				Isoprocarb	0.01	0.01		II
				Myclobutanil	0.02	0.05		II
				Phoxim	0.01	0.1		II
				Thiamethoxam	0.02	0.1		*
				Thiophanate-methyl	0.3	0.1		U
				Triadimefon and triadimenol	0.11	0.2		II
				Bifenthrin	0.05	0.1		II
				Cyhalothrin lambda	0.42	1		II
				Cypermethrin	0.37	0.1		II
				Fenvalerate & Esfenvalerate (Sum of RS&SR Isomers)	0.15	0.05		II
				Isofenphos-methyl	0.03	0.01		O

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
57	Hongjitang Shandong	Dyers Woad Leaf	1	Propamocarb	0.04	0.2		U
58	Hongjitang Shandong	Jastis Root	Not Detected					
59	Hongjitang Shandong	Platycodon grandiflorus	Not Detected					
60	Hongjitang Shandong	Rhizoma Atractylodis Macrocephalae	6	Carbendazim/Benomyl (sum)	0.02	0.1		U
				Dimethomorph	0.01	0.05		U
				Phorate (Sum)	0.51	0.05	Y	Ia
60	Hongjitang Shandong	Rhizoma Atractylodis Macrocephalae	6	Propamocarb	0.15	0.2		U
				Isoprothiolane	0.05	0.01		II
				Quintozene	0.08	0.1		u
61	Zhangzhongjing Henan	Chrysanthemum	35	Abamectin (Sum)	0.04	0.02		*
				Acetamiprid	0.83	0.1		*
				Avermectin B1a	0.04	0.02		*
				Buprofezin	0.02	0.05		III
				Carbendazim/Benomyl (sum)	0.66	0.1		U
				Chlorfluazuron	0.02	0.01		U
				Chlorpyrifos	0.28	0.5		II
				Cyromazine	0.17	0.05		III
				Diethofencarb	0.19	0.05		U
				Difenoconazole	0.11	20		II
				Dimethomorph	3.4	0.05		U
				Fipronil	0.01	0.005	Y	II
				Flusilazole	0.02	0.05		II
				Imidacloprid	0.1	0.05		II
				Iprodione	5.2	0.1		III
				Metalaxyl	1.4	0.1		II
				Myclobutanil	0.03	0.05		II
				Oxadixyl	0.02	0.02		II
				Prochloraz	0.23	0.2		II
				Propamocarb	2.4	0.2		U
				Propargite	0.24	0.02		III
				Propiconazole	0.04	0.1		II
				Pyraclostrobin	0.02	0.05		*
				Pyridaben	0.05	0.05		II

No.	Brand	Product	No. of pesticides residues	Pesticide residues	Amount (mg/kg)	MRL EU	Banned in China	WHO classification
61	Zhangzhongjing Henan	Chrysanthemum	35	Pyrimethanil	1.8	0.1		III
				Tebuconazole	0.15	50		II
				Tebufenozide	0.06	0.1		U
				Triadimefon and triadimenol	0.03	0.2		II
				Chlorothalonil	0.14	0.1		U
				Cypermethrin	0.44	0.1		II
				Endosulfan (Sum)	0.17	0.1		II
				Fenpropathrin	0.12	0.02		II
				Procymidone	1.4	0.1		U
				Profenofos	0.35	0.1		II
				Propanil	0.16	0.1		II
62	Zhangzhongjing Henan	Unprocessed rehmannia root	Not Detected					
63	Zhangzhongjing Henan	Adenophora stricta	2	Phorate (Sum)	0.06	0.05	Y	Ia
				DDE,p,p'-	0.01	0.5	Y	II
64	Zhangzhongjing Henan	Angelica sinensis	3	Chlorpropham	0.02	0.1		U
				Phorate (Sum)	0.53	0.05	Y	Ia
				Piperonyl butoxide	0.01			U
65	Zhangzhongjing Henan	Chinese date	5	Methidathion	0.15	0.02		Ib
				Propargite	0.01	4		III
				Pyridaben	0.04	0.5		II
				Bifenthrin	0.06	0.2		II
				Dicofol (Sum)	0.04	0.02		II