

GOJI BERRIES

Issue

This paper reviews the available evidence concerning the history of consumption of goji berries in the UK prior to 15 May 1997 and whether the berries should be considered novel foods in the UK/EU.

Conclusion

In the Agency's opinion, there is sufficient evidence to indicate that the berries were being consumed to a significant degree in the UK before May 1997, in which case the requirements of the novel foods regulation do not apply

Background

1. Under regulation (EC) 258/97, novel foods and food ingredients may only be marketed if they have been evaluated and authorised under the procedures defined in the regulation. A novel food or food ingredient is defined as one that was not used for human consumption to a significant degree in the European Community before 15 May 1997, which is the date when the regulation came into force.
2. Goji berries (Chinese wolfberries) are small red fruits obtained from the plant *Lycium barbarum*, a vine that grows in China, Tibet and other parts of Asia. If there is no evidence of a significant history of consumption prior to May 1997, goji berries will fall under the novel foods regulation and therefore may not be marketed without a specific authorisation.
3. The status of goji berries as novel foods was first raised in 2004 in one of the EU member states (not the UK) and the question was considered by the Competent

Authorities for novel foods in all EU member states. At that time, none of the Competent Authorities was aware of a significant history of consumption, other than in food supplements. The use of foods and/or food ingredients in the EU exclusively as, or in, food supplements is not considered to be significant human consumption within the meaning of Regulation (EC) N° 258/97. Other food uses, i.e. “non-food supplement” use, therefore require authorisation under the Regulation. This approach was formally endorsed by the Standing Committee on the Food Chain and Animal Health at its meeting on 14 February 2005¹.

4. Goji berries have recently been marketed as foods in the UK in various retail outlets, including one of the major supermarkets. Other retailers have begun marketing other products containing goji berries, such as fruit drinks.
5. The Agency was approached in August 2006 by a company asking whether the novel foods regulation did not apply to the berries. Between September and December 2006, the Food Standards Agency was similarly approached by a number of stakeholders for similar advice. As this question had been addressed already at EU level in 2004, the Agency replied on each occasion that there appeared to be no evidence of previous consumption of goji berries in the UK or elsewhere in the EU, as a food ingredient, and the sale of goji berries may therefore be subject to the Novel Foods Regulation.
6. In October 2006, the company who had contacted the Agency in August provided figures for Chinese exports of goji berries during 2000-2005 suggesting that the berries have been exported from China to a number of EU countries during this period, including the UK. The Agency consulted the authorities in those countries and they confirmed that they still regarded the berries as a novel food. The Agency therefore continued to advise that the berries appeared to be novel.

Agency's consultation on goji berries

7. On 8 February 2007, The Food Standards Agency wrote to interested parties and invited them to provide evidence of a significant history of consumption for goji

¹ See: http://ec.europa.eu/food/committees/regulatory/scfcah/general_food/index_en.htm

berries in the EU (**Annex 1**). At the same time, the request for information was published as a news item on the Agency's website². In May 2007, the Agency also contacted Chinese catering associations, on the recommendation of the Chinese Embassy in London, asking them if they could provide evidence of history of consumption of goji berries in this country before 15 May 1997.

8. The novel food regulation does not define what constitutes "human consumption to a significant degree", which is the central criterion for establishing whether a food falls within the scope of the regulation. The interpretation of this criterion has not, to our knowledge, been tested in the courts. In the Agency's view, and consistent with advice from the European Commission, significant consumption would be demonstrated by evidence of sale to the general public in a range of locations, and in non-trivial amounts. Supporting evidence might be in the form of commercial sales documents. In the case of goji berries, it would also be necessary to demonstrate that the berries were consumed other than in the form of food supplements, as it is accepted that supplements were on sale prior to 15 May 1997 and the consumption of food supplements is regarded separately to that of other foods (see above).

Information provided to the Agency on goji berries

9. The Agency received more than 70 responses to its request for information and about half of these provided information and/or comments relevant to the historical consumption of goji berries and their novel food status (**Annex 2**). This included responses from companies with an interest in marketing goji berries, legal practitioners and private individuals. Information on trade in goji berries was also received from the Chinese authorities (the Embassy of the People's Republic of China in the UK and the Administration for Quality Standards, Inspection and Quarantine (AQSIQ)).
10. A majority of the responses expressed concern that goji berries might be taken off the market, or sought information about the legislation and the associated procedures. Many others provided information concerning the consumption of

² see: <http://www.food.gov.uk/news/newsarchive/2007/feb/goji>

the berries in the UK, or elsewhere in the EU, before the novel food regulation came into effect in May 1997.

11. Some respondents indicated that the name "goji berry" is a relatively recent invention, based on the Chinese name "Gou Qi Zi", and the plant and berries are also known under other names including: *Lycium barbarum*, Chinese wolfberry, matrimony vine, Chinese boxthorn, red medlar, the Duke of Argyll's Tea Tree. One respondent suggested that the name "goji" was originally applied only to the species *L.chinensis* and should not be used for *L.barbarum* (47). However, it appears that "goji" is widely understood in the UK to refer to the latter species and that is how it is used in this report.
12. Transcripts of the information received by the Agency can be found in **Annex 2**. In a small number of cases, confidential information has been withheld at the request of the respondents.

Analysis of evidence provided on consumption of goji berries in the UK/EU

Agency officials have checked and analysed the above information that has been provided, consulting as necessary with the authorities in other EU Member States that are mentioned in the responses. The information is summarised below under the following headings:

- Cultivation of *L.barbarum* in the UK
- Import data
- Ethnic markets and restaurants in the UK
- Whole goji berries sold or used as food ingredients
- Extracts and infusions of goji berries
- Sale of goji berries in other EU Member States
- Legal issues
- Other information

(a) Cultivation of *L.barbarum* in the UK

Several respondents (2, 5, 14, 15, 22, 35, 36) referred to the cultivation of *Lycium barbarum* in the United Kingdom, which is reported to date back to its introduction in the 1730s. The plant appears in Scottish botanist Philip Miller's eighth edition of The Gardener's Dictionary, published in 1768, and is now widely established as a naturalised species in the UK, being found in hedgerows in some parts of the country. *L. barbarum* is also available for

cultivation from UK plant nurseries and it is listed by the Royal Horticultural Society with various synonyms (chinese box thorn, barbary box thorn, barbary wolfberry, common matrimony vine, vicar's tea party).

Some respondents noted that the berries on these shrubs are attractive to birds and one mentioned a reference from 1830 to the berries being tied as beads around the necks of teething children. One respondent (3) had tried the wild berries and found them to be bitter, remarking that the fruit tends to be thinly spread and the effort needed to gather a significant quantity would probably deter collectors.

The existence of the plant *L.barbarum* in hedgerows and gardens in the UK does not mean that fruit has been grown and consumed to any significant extent. It appears that the bushes in the UK may not produce significant numbers of berries, perhaps as a result of the climate and/or other factors. There is no actual evidence of berries being grown commercially in the UK or being marketed or consumed to any degree.

(b) Import data

A number of respondents (33, 35, 36) provided figures for the volume of exports of goji berries from China to the UK and other EU countries during 1996, 1997, 2000, 2002 and 2005. The same information was provided to the Agency by the Chinese authorities (26), along with data on the re-export of goji berries from Hong Kong. The figures relating to the UK are summarised in the following table:

| | from China | | from Hong Kong | |
|------|------------|-----|------------------|-----------|
| Year | kg | \$ | kg | ,000 HK\$ |
| 1992 | 0 | 0 | 495 | 26 |
| 1993 | 54 | 238 | 604 | 32 |
| 1994 | 30 | 67 | 1504 | 84 |
| 1995 | 106 | 552 | 1063 | 44 |
| 1996 | 0 | 0 | 2532 | 105 |
| 1997 | 50 | n/a | 366 (Jan-May) | 42 |

n/a: not available

These export data provide useful figures for trade between China / Hong Kong and the UK. Comparable import data do not exist in the UK since imports of dried fruits are not categorised to this level of detail. Although the quantities imported from China are low in relation to the size of the UK, more significant amounts arrived in the

UK from Hong Kong, having been grown in China or perhaps in other Asian countries. Import of the berries does not automatically mean that they were consumed as such, however, since it is known that dietary supplements containing goji berries were being marketed in the EU before 1997.

(c) Ethnic markets and restaurants in the UK

A number of responses (**1, 19, 20, 36**) stated that goji berries are widely available in Chinese grocery stores in the UK as a food ingredient, although they did not provide concrete evidence of the history of such sales or the quantities involved. Goji berries are also reported to be used as an ingredient in Chinese cuisine and would therefore be likely to be used in the UK by Chinese restaurants and takeaways. The berries are also reported to be a common component of Chinese herbalist prescriptions.

Other wholesalers and retailers have reported that they were selling goji berries before 1997 (**1, 35**) but, as the standard practice is to dispose of commercial records after 6 or 7 years, no documentary evidence could be provided. Signed statements were provided from an Indonesian restaurateur and from a Chinese and Oriental supplier (**34**), declaring that goji berries were regularly marketed and used in the UK before May 1997.

The London Chinatown Chinese Association (**29**), on behalf of the Chinese Community and restaurants, has informed the Agency that goji berries have been widely and traditionally used in cooking for many generations and are favourably used in soups and dishes alike. Some UK Chinese cash and carries have indicated that they have imported goji berries in the UK since the early 1970s and that these berries are staple ingredients used by Chinese families and the Chinese community for cooking and in particular for soups and steaming dishes (**30-32**).

The information provided by Chinese outlets, and their customers, provides strong evidence that goji berries were being marketed in numerous locations across the UK, and that these berries were being consumed as such. There is no information on quantities and it is therefore not possible to comment on how significant this consumption was.

(d) Whole goji berries sold or used as food ingredients

One health food supplier (6) stated that goji berries have been listed in their catalogues since 1990. The Health Food Manufacturers Association (HFMA, 35) provided a page from this company's 1995 catalogue advertising the availability of "lycium fruit (gou qi zi) " packaged in units ranging from 1oz to 16oz (28 to 454g). The company's stock sheets indicated total sales of 48kg between January 1991 and May 1997.

The HFMA (35) also provided records from another supplier indicating that 280kg of goji berries ("gou qi zi") were sold in 500g units between January and June 1996. Another respondent (24) provided a copy of an invoice confirming the sale of gou qi zi by the same company in 1996, although this respondent suggested that these berries were of the species *Lycium chinensis*.

Further evidence of the availability of goji berries was provided in the form an article published in *Healthy Eating Magazine* in November 1994. This magazine seems no longer to be published, but at that time it was in general circulation and was sold by most of the larger newsagents. This article includes a number of traditional Chinese recipes, one of which calls for the use of "wolfberry fruit (*Lycium chinensis*)" and another "Lycium berries", with the implication that readers would not have had much difficulty obtaining these ingredients in 1994.

The available sales records indicate that goji berries were being sold during 1996, although the documented sales in earlier years were considerably lower. Given the passage of time, it is understandable that other traders no longer have documentary evidence of sales although they are able to recollect that the berries were being marketed at that time.

It is reasonable to assume that some, if not all, of these berries were being consumed as such and not being used for some other purpose, such as the production of food supplements or extracts.

The magazine article provides supporting evidence that the berries were available in 1994, since a mainstream magazine would be unlikely to publish recipes that rely on ingredients that cannot be reasonably easily obtained by its readers.

(e) Extracts and infusions of goji berries

Information was provided (**23, 35**) to show that concentrated extracts and infusions prepared from the berries have a history of use as ingredients in various soft or alcoholic drinks that were marketed in the UK. Documentary evidence was provided of the supply of more than 25 tonnes of such extracts during 1996-1997, which were produced from several tonnes of berries imported from Hong Kong. The berries are described in these papers as "wolfberries".

Another respondent (**22**) referred to the use of goji berries as an ingredient in Ginseng tea.

There is good evidence of the consumption before 1997 of extracts and infusions prepared from goji berries. However, this cannot be taken as a history of consumption of the whole berries, which will inevitably contain many components that are not present in the extracts and infusions and are a different product.

(f) Sale of goji berries in other EU Member States

One respondent (**34**) reported that goji berries were sold in Germany and the Netherlands before 1997 and provided copies of sales catalogues from trading companies dating from 1992/1993. Another (**13**) stated that an Asian supermarket in France was one of the first companies in the EU to commercialise goji berries (under the names *Fructus lycii* or *Gou Qi Zi*).

Two respondents (**35, 36**) drew attention to an official decree issued in Belgium in August 1997, in which goji berries appear on a list of herbal products authorised in foodstuffs.

Three respondents (**35, 34, 36**) referred to a German court decision from October 2002, that goji berries should be classified as a foodstuff. Evidence presented in this case showed that an importer had purchased goji berries from China during 1993-1997 and the berries were distributed mainly via pharmacies.

In 2005, *Lycium barbarum* was removed from an official list of prohibited plants in the Netherlands (**34**).

Figures for the export of goji berries from China to various EU Member States were also provided (**35**), as mentioned above under section (c).

The Food Standards Agency is the competent authority in the UK for the purposes of the novel foods regulation 258/97, but the Agency is not responsible for the implementation and operation of the regulation in other member states. The Agency has therefore passed this information to the equivalent authorities in the relevant Member States, who have confirmed that – in their opinion – it does not provide evidence of a significant history of consumption.

(g) Legal issues

Some respondents (33, 34, 36) questioned the Agency's interpretation of the scope of the novel foods regulation and suggested that, irrespective of their history of consumption, goji berries are not subject to this legislation. The arguments that were put forward were:

- paragraph 2(e) of Article 1 of the Regulation defines one category of novel food as “foods ... consisting of or isolated from plants ... except for foods ... obtained by traditional propagating or breeding practices and having a history of safe food use”. As goji plants are the result of traditional breeding, and have a history of safe use in countries where they are grown, they are excluded from the scope of the regulation.

In our view, this exclusion has to be read together with the opening of Article 1(2), which clearly states that it is talking about consumption within the EU. This interpretation of Article 1(2) (e) is confirmed by previous examples of foods that have been assessed under the Regulation and for which there is a history of consumption in other parts of the world, such as noni juice (Commission Decision 2003/46 EC).

- *Lycium barbarum* is recognised as a safe, healthy food and a food's safety record should be a material consideration when assessing whether there is a significant history of consumption.

There appears to be no legal basis for reaching different conclusions on the novel food status of foods based on their safety, other than as part of the exclusion mentioned in the previous bullet point

- there is no legal basis for differentiating between the use of ingredients in food supplements and their use as, or in, other foods. As goji berries have an accepted history of use prior to 1997 in food supplements they fall outside the scope of the regulation.

The position with regard to ingredients that have a history of use only in food supplements was agreed in February 2005 by the Standing Committee on the Food Chain and Animal Health. This committee is empowered by Article 1(3) of the novel food regulation to decide, where necessary, whether a particular type of food or food ingredient falls within its scope.

- The European Commission is considering revising the regulation with a view to lowering the relevant safety assessment requirements or even exempting traditional foods from third countries.

These two do not appear to be relevant considerations when considering the application of the existing novel foods regulation. The Commission has not yet issued any proposals for revision of the regulation. If the Commission proposes a different approach to the regulation of traditional foods from other parts of the world, this would need to be examined and agreed by EU Member States and the European Parliament before it had any legal effect.

(h) Other information

Many of the responses did not provide information relevant to the novel food status of goji berries, but questioned the purpose of the legislation or provided other comments on the process.

A number of respondents expressed concern that goji berries were considered as novel foods because they enjoyed consuming them and some indicated that they have eating them for years. Others were of the view that, as goji berries are a safe food (**7, 9, 10, 21, 28**), and have a long history of consumption in China (**8, 15, 17, 25**), they should remain on the market.

One respondent (**16**) reported that he had enjoyed consuming the berries for a number of years as a family member had regularly brought packs of dried berries from India when visiting the UK. Others referred to health benefits attributed to consumption of the berries (**10,11,12,18**).

One respondent (**2**) provided data on quantities of goji berries exported from China to Hong Kong in 1996, when Hong Kong was a British colony.

Even if it could be assumed that a proportion of these imports had been consumed in Hong Kong, it would not affect the position under the novel food regulation as Hong Kong is not, and has never been, a part of the European Community.

One respondent (**36**) reported that a Chinese exporter of goji berries (NingXia Wolfberry Biological Engineering Ltd) had received organic certification in 2006 from a German certifying body.

Certification issued under the organic food legislation (regulation (EC) 2092/91) does not prove that there is a history of consumption of the relevant products before May 1997 or that the products comply with all relevant food law, including the novel food regulation.

Some respondents commented on the safety of the berries. One (**33**) observed that every effort is made to ensure that the berries reach consumers in a safe condition. Another trader (**4**, not based in the UK) stated that "the product must be inspected rigorously before import ... with on farm inspection as a priority to product acceptance. It is a buyer beware market at this time saturated with MLM [multi-level marketing] agents that will sell and say anything". One individual (**27**) reported an adverse reaction (unspecified) to goji berries, possibly due to an interaction with antidepressant medication.

One respondent (**36**) suggested that the withdrawal of the "free sale" status of the goji berry would have a significant impact on small stakeholders based in the UK and currently trading in goji berries. It was suggested that, while this does not bear directly on the novelty of the berries, it should be taken into account in relation to the weight of evidence needed to show a history of consumption.

The impact on stakeholders does not appear to be a relevant consideration when considering the status of goji berries under the novel food regulation. Prior to the current enquiry, goji berries did not have a "free sale" status.

Discussion

As a result of this consultation, the Agency has gathered a significant amount of new information regarding the history of consumption of goji berries in the UK. Some of this information, such as the history domestic cultivation of the plant and the use of plant extracts, does not provide any evidence that the berries were consumed to a significant extent and does not influence their status under the novel foods regulation.

The figures for international trade indicate that several tonnes of berries were imported into the UK from China and Hong Kong in the years leading up to 1997, but cannot explain whether the berries were marketed and consumed as foods or food ingredients. By itself this information is therefore insufficient to prove a history of consumption of the berries *per se*.

Information provided by specialist Chinese traders and restaurants indicates that they have regularly traded in goji berries for up to 20 years, since the 1980s. Whilst there is no hard evidence of the quantities involved, the novel foods regulation has been in force for more than ten years and it is not unexpected that the provision of commercial sales information (sales invoices etc) is not always possible.

Statements from traders that the berries were being sold as ingredients for Asian cuisine before 15 May 1997 have some validity, since Chinese and other Asian cuisine is consumed by a significant proportion of the UK population, both in the home or in restaurants.

The appearance of goji berries (albeit under a different name) in recipes published in a mainstream food magazine in 1994 suggests that, while they might not have been available in corner shops and large supermarkets, readers of the magazine were expected to have reasonable access to shops where they could be purchased.

Conclusion

The Agency has evaluated all the additional evidence supplied and, while none of the individual pieces of information alone appears to provide incontrovertible proof of a substantial history of consumption, the overall picture is sufficient to indicate that the berries were being consumed to a significant degree in the UK before May 1997, in which case the requirements of the novel foods regulation do not apply.

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Novel Foods, Additives and Supplements Division

Contact:

Dr Sandy Lawrie

Head of Novel Foods Branch

Tel: 020 7276 8565

e-mail: novelfoods@foodstandards.gsi.gov.uk

Annexes attached:

Annex 1 – Agency's letter to stakeholders of 8 February 2007.

Annex 2 – Copies of responses received during public consultation.