

To

Food Minister Nicholas Soames MP, Members of the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT), The Food Advisory Committee (FAC), The National Poisons Unit, MAFF Consumer Panel, Baroness Cumberlege, Department of Health, Health Food Manufacturers Association, British Herbal Medicine Association, Institute for Complementary Medicine, Research Council for Complementary Medicine, National Institute of Medical Herbalists, Consumers' Association, National Consumer Council, British Medical Association, Interested Members of Parliament

The safety-in-use of comfrey and comfrey products

Results of a Research Survey
carried out in the
United Kingdom
from 1993-1994
by the Society for the Promotion
of Nutritional Therapy

Introductory Comments

Comfrey is a common hedgerow plant which has been consumed for 1500 years as a food and health aid. It is traditionally known for its tissue strengthening properties and is sometimes known as 'knitbone'.

At a meeting dated 2 March 1993 UK Food Minister Nicholas Soames MP, on the advice of the Committee on Toxicity and Food Advisory Committee, asked the health food trade and industry to discontinue the sale of all tablets and capsules containing comfrey, and to withdraw existing supplies from shelves. Representatives of the relevant associations agreed voluntarily to do so. The grounds for the ban were that the content of pyrrolizidine alkaloids (PAs) in comfrey could constitute a hazard to health.

In the course of this meeting of 2 March, which was convened with four days' notice, the Society for the Promotion of Nutritional Therapy (SPNT), which represents consumers and practitioners of nutritional

therapy (which may include the use of comfrey products) expressed deep concern that the government had not held any consultation procedure with consumers prior to announcing its decision. The society had not been informed that the COT was investigating comfrey, and had not been given the opportunity to present any material which could be used in an assessment of the safety of comfrey. In the course of the meeting of 2 March the society's request to delay any ban on comfrey until it had been given such an opportunity was denied. The society was also concerned that by making the comfrey ban a voluntary one, the government avoided having to subject its arguments to Parliamentary scrutiny.

After the ban, the SPNT subjected the COT's and FAC's reports to close scrutiny. Many errors and inaccuracies were found, and it became clear that the criteria used as the basis for the ban did not stand up to this scrutiny. Epidemiological evidence against comfrey appeared to have been fabricated by referring to poisonings by plants other than comfrey. In one case report of 'death due to comfrey', the plant had not

even been in season at the time the fresh leaves were alleged to have been eaten. The investigators also failed to mention that the *British Medical Journal* had more than ten years previously discounted the only unfavourable animal study using comfrey, as being unsuitable for extrapolation to normal human consumption, in view of the unrealistically large amounts of comfrey which the animals were fed.

These criticisms were pointed out to MAFF, refused to remove the ban, but indicated that it would reconsider it if 'further scientific data' justified this.

The SPNT accordingly set up a nationwide survey on comfrey use, the results of which are now reported.

The final part of this document is a response to the government's statements justifying its ban.

On the basis of this survey and other evidence taken into account, the Society for the Promotion of Nutritional Therapy now calls for either the lifting of this ban, or for the government to propose making the ban compulsory, thereby subjecting it to proper Parliamentary scrutiny.

Should the government consider lifting the ban, society submits that the government can answer safety concerns by means of cautions on labels, or by setting upper limits for the content of pyrrolizidine alkaloids in comfrey products, as is the custom in other countries such as Germany. The society would also not object to the restriction of comfrey sales to trained, registered nutritional therapists and medical herbalists, for professional use only.

The Survey

Comfrey contains pyrrolizidine alkaloids (PAs). Fed to rats in a 1978 Japanese study[4], comfrey leaf produced liver tumours at an intake equivalent to 28 times the animals' body weight, and comfrey root when fed at the level of 1% of the animals' total diet. This was a poor quality study; for instance the comparative survival of the control group of animals was not reported.

MAFF states that four case reports also implicate comfrey in liver disease, but as already pointed out, in the New Zealand case cited, comfrey was not even in season at the time the fresh leaves were supposed to have been eaten. The poisonous plant could not have

been comfrey.

This appears to be the total sum of the evidence against comfrey itself.

Although plants containing other types of PAs have caused widespread illness in humans, MAFF failed to find any of these PAs in the comfrey samples it tested. Replying to a Parliamentary Question tabled by Bill Etherington MP on 23rd February, MAFF admitted that there had never been any cases of poisoning by comfrey or comfrey products in the UK. Research based on likely levels of intake, in fact suggests that there is no risk at these levels [1,2].

Many consumers report significant health benefits from using comfrey, and are very distressed that comfrey products have been withdrawn.

The Society for the Promotion of Nutritional Therapy, together with the Action Group for the Relief of Pain and Distress (now no longer in existence) carried out this nationwide research survey of comfrey use to determine patterns of use among comfrey consumers, and to identify patterns of ill health, if any, which might be associated with them.

Materials and methods

30,000 questionnaires were distributed to the public, through outlets most likely to reach comfrey consumers: *Green Farm magazine*, *Nutritional Therapy Today*, Henry Doubleday Research Association newsletter, *Living Earth* magazine, *Herbs* magazine, and by direct mailing to the members of the National Institute of Medical Herbalists and the General Council and Register of Consultant Herbalists. A general press release was also sent out, asking for **comfrey** consumers and health shops to contact SPNT for questionnaires, and a number of publications carried this request.

In view of concerns that adverse effects of comfrey consumption may take several years to cause liver damage, the survey questionnaire included questions on the form of comfrey product consumed, time when consumption began, frequency of consumption, occurrence of unexplained symptoms, reporting of these symptoms to a doctor, health effects, and general comments.

More than 1,000 questionnaires were returned. Those reporting the use of comfrey tablets or capsules or fresh comfrey totalled 629.

Figure 1: Use of comfrey products

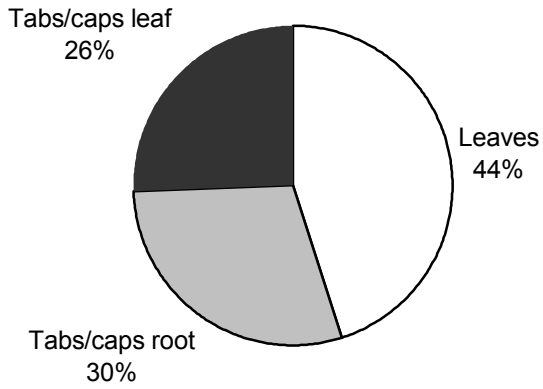


Figure 2: Consumption

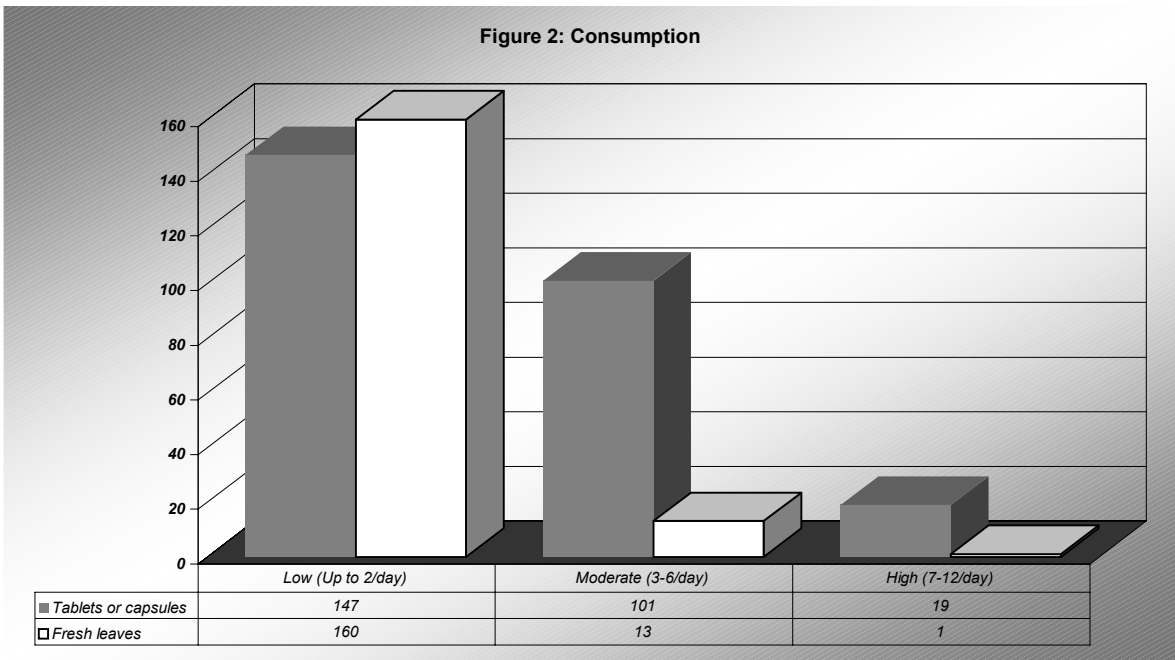
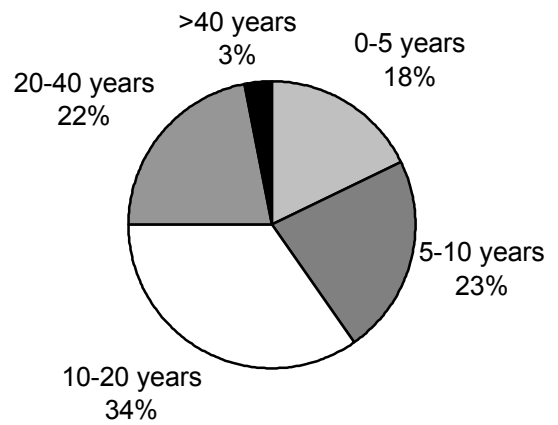


Figure 3: Length of use



Findings

Figure 1 shows the distribution of use of comfrey products. 44.9% of consumers report consumption of fresh leaves, 29.5% report consumption of tablets or capsules made from comfrey root, and 25.5% report consumption of tablets or capsules made from comfrey leaf. Many report consuming both fresh comfrey and tablets/capsules. Data on comfrey tea, though given in many cases, was not requested in the questionnaire because comfrey tea has not been banned.

Figure 3 shows length of comfrey use, with most people having begun comfrey consumption 10 to 40 years ago. 3% of consumers have used comfrey for more than 40 years (maximum 60 years).

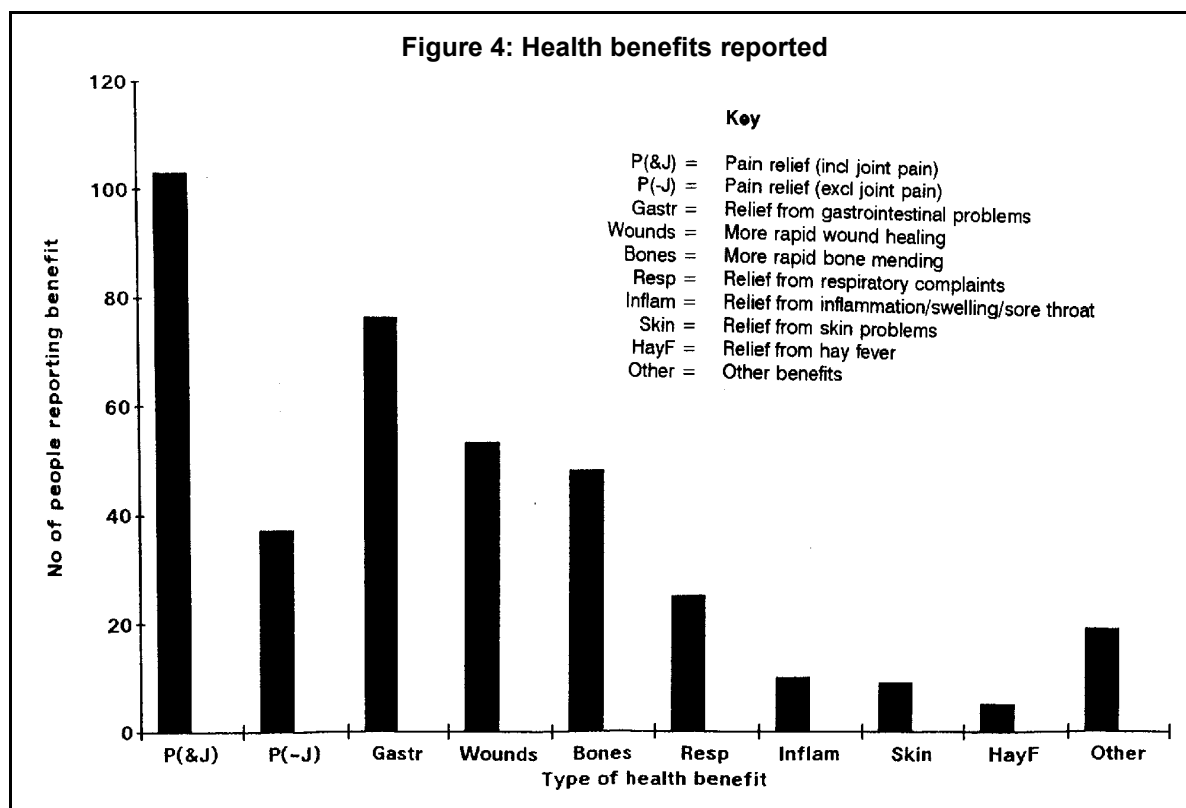
Consumption habits were mainly occasional, or 'as required'. Of those who reported more regular use (not necessarily throughout the period of time involved), consumption was as shown in Figure 2.

Adverse reactions reported

Although no effects which could be linked with long- or short-term comfrey toxicity were reported by any users, two people developed a skin allergy after comfrey use (sore skin or sore nose/pimples). One person reported constipation, (in contrast with another who reported relief from constipation). One found that although comfrey relieved pain in her hand joints, she developed heavy menstrual periods. One had rheumatic pain relieved by fresh comfrey leaves, but developed giddiness after consuming them. These symptoms were reported to doctors in all cases except for the skin problems.

Health benefits reported

In contrast, many health benefits were reported by comfrey users (see Figure 4). Most striking was the number of people reporting relief from arthritic pain and various other types of pain such as cystitis, angina and pain from bone fractures. Reports of relief from gastrointestinal problems were also numerous, e.g.



irritable bowel syndrome, gastric ulcers, diverticulitis. Reports of rapid healing of fractures and wounds ranked next.

Comments from respondents

There was much anger at the ban on comfrey products, which was seen by many as 'senseless'.

Conclusion

We would have liked this study to be larger, but our efforts to distribute the questionnaire were very extensive, and it is likely that most former comfrey users would have known that this study was taking place and known that they had an opportunity to take part. Those with ill health which they might have suspected to be comfrey-related after hearing about the ban on comfrey products, would have been just as likely to contact us or to complete a questionnaire, in the interests of public safety, as those who have gained benefits from comfrey consumption. We therefore consider that the results of this study are likely to be representative of the whole comfrey-consuming population.

If no patterns of liver disease likely to be linked with comfrey consumption can be demonstrated among more than 629 people who have used comfrey and/or comfrey products, for periods of up to 60 years, from small to large amounts and with varying degrees of regularity, it is suggested that the three known anecdotes of toxic reactions to comfrey are likely to be due either to idiosyncratic factors or to contamination of the comfrey crops or products with unknown toxins.

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Note

The SPNT is particularly aware that the health benefits reported for comfrey are so many and varied that they may be discounted as far-fetched or 'placebo' effects by those who seek scientific sophistication. It has to be borne in mind that comfrey is not a drug or even an isolated chemical. It is a plant with many nutritional components, all of which might have different health effects on different people. For instance science is only now beginning to understand the nutritional significance of flavonoids in plants.

In the light of these comments SPNT believes that it is right that comfrey and its tableted and encapsulated products should come under food law. We reject suggestions from the Department of Health that those who wish the ban on these products to be lifted should apply for a drug licence for them. Drugs are virtually always pure, isolated chemicals with very specific effects, potentially toxic in very small amounts indeed. The rigours and expense of conforming with pharmaceutical marketing regulations would be totally inappropriate for a food which has been consumed in our culture for 1500 years. The problems inherent in making natural plant substances conform to standards of purity which have been designed for synthetic products are extremely expensive to resolve. Manufacturers are also aware that the patenting restrictions on natural products, will prevent them from recovering these costs. This is why they have simply ceased marketing comfrey products, to the detriment of the consumer.

The government responds by saying that if comfrey tablets and capsules are used medicinally by consumers, then these products should be subjected to the same rules as pharmaceutical drugs to prove that they are safe.

Comfrey supporters respond that alcoholic drinks such as brandy, bran or glucose tablets and many other consumer products are used medicinally yet are not required to conform to pharmaceutical regulations. Many more health problems have been caused by alcohol than by comfrey.

Comments on MAFF's statements justifying the ban on comfrey products

1. The action taken [the ban] was based on clear advice from the Committee on Toxicity and the Food Advisory Committee

These Committees appear to have based this advice on one rat study and four case reports. There is far more evidence of potential harm from many other consumer products, including alcohol and tobacco. For instance the Committee on Toxicity would be completely justified if it were to recommend the banning of alcohol and tobacco on grounds of this evidence, but it is unlikely that Ministers would take its advice, since they must take many other factors such as consumer rights into consideration. Consumers naturally expect the same courtesy from the government for comfrey products as for other consumer products and are deeply distressed that it has not been given.

2. These Committees reached their conclusions after a thorough consideration of all the available data

On balance the evidence in favour of comfrey is stronger than the evidence against. Anderson & McLean found no evidence of liver damage in 29 humans who had used comfrey products for up to 20 years[1]. Animal studies suggest beneficial effects of comfrey consumption[2]. In view of this evidence a simple warning on the label not to exceed the manufacturer's recommended intake would have been a more appropriate conclusion than a ban.

3. The conclusions have been generally accepted by industry groups and consumer organisations

The Society for the Promotion of Nutritional Therapy represents practitioners and users of nutritional therapy, which may include the consumption of comfrey. This organisation has not accepted the ban on comfrey tablets and capsules. The Natural Medicines Society, the General Council and Register of Consultant Herbalists and the Institute for Complementary Medicine (which represents some 300 natural medicine organisations) likewise do not support the ban on comfrey tablets and capsules[3]. The Consumers' Association initially supported the

ban on the basis of the reports from the Committee on Toxicity and the Food Advisory Committee and will consider the arguments against MAFF's decision when it reviews the comfrey issue[6]. The National Consumer Council also initially supported the ban, but having now heard the arguments against it, considers them to be strong and is anxious for procedures, information and discussions in these matters to be much more open[7].

Industry groups have had little choice but to accept the ban. Comfrey is not a profitable enough product to justify the cost of the kind of research projects normally demanded from commercial companies[8].

4. Other countries have introduced restrictions on comfrey

British people are not obliged to be influenced by campaigns in other countries - particularly in view of the paucity of evidence of harm from comfrey. For instance, the zeal of Australian anti-comfrey campaigners saw comfrey in some states of Australia receive a higher poisons classification than arsenic, hemlock, belladonna and strychnine. In the state of Victoria comfrey was restricted from external use when there is no evidence that this is harmful. The media hysteria generated by the campaigners' crusade saw a coroner file a report in Australia attributing a human death to just a few meals containing comfrey leaves.

There is a very strong tradition of comfrey use in Britain, and such campaigners are not easily tolerated here.

5. The Working Group on Dietary Supplements and Health Foods was concerned that the Medicines Control Agency had withdrawn product licences from preparations containing certain herbs and recommended that urgent steps be taken to review the safety and use of these herbal substances which were still on sale as foods

Comfrey is one of a group of 25 herbs which had their product licences withdrawn on the grounds that they could not be proved to be drugs. It does not follow that because herbs cannot be proved to be drugs they should present any risk to human health. After examining the remaining 24 herbs, the COT itself has concluded that there is no evidence that they present any risk at levels of likely intake.

6. The toxic effects of comfrey are due to its pyrrolizidine alkaloid (PA) constituents. Their toxicity is well known.

The same statement might well be applied to many common foods such as potatoes, almonds, tea, coffee, mustard, chickpeas and parsnips, many of which also contain various types of alkaloids or other plant toxins. Why pick on comfrey?

7. Liver damage due to retrorsine, monocrotaline and lasiocarpine alkaloids has been recorded in several animal species. Carcinogenicity studies report an increased incidence of liver tumours.

The COT appears to imply by innuendo that the consumption of comfrey will raise the **body** intake of these alkaloids to dangerous levels, yet none of these alkaloids were found in the comfrey samples tested.

8. There is much evidence of PA toxicity in humans. Several cases of veno-occlusive disease associated with the consumption of plants containing these alkaloids have been reported

None of these cases appear to have anything to do with comfrey, which contains different alkaloids from those linked with the harmful effects. The COT admits that none of the alkaloids linked with outbreaks of PA poisoning were detected in the comfrey samples.

9. There are little acute or chronic toxicity data available on any of the comfrey alkaloids

Humans are unlikely to consume isolated alkaloids. On the other hand they have consumed the comfrey plant for 1500 years with no epidemiological evidence of problems.

10. Symphitine, which occurs in comfrey, induced liver tumours in four out of twenty rats which received 13 mg/kg body weight by intraperitoneal injection twice weekly for four weeks then once a week for 52 weeks.

It does not seem logical to inject an isolated chemical in this way, to extrapolate the results to a food containing minute quantities of this chemical, and then to say that this food is dangerous at levels of likely intake when there is no epidemiological evidence that this is so.

11. Symphitine has been shown to be positive in an Ames test for mutagenicity

Many common constituents of food have been shown to have mutagenic properties. However, one animal study on comfrey showed a protective effect against tumours, which suggests that the comfrey plant in natural form contains other ingredients which afford protection against the mutagenic properties of symphitine at levels of likely intake.

12. In a study by Hirono et al[4], comfrey root and leaf induced liver tumours. The data suggest that long-term exposure to low levels of comfrey root may induce malignant tumours in the liver of rats

This statement is inaccurate. Hirono et al proved that in order to produce even a limited amount of liver damage in a rat it is necessary to expose the rat for a large fraction of its lifespan, giving the equivalent of several times its own bodyweight of comfrey leaf (when the results are expressed as fresh material) or at least 1% of its diet as comfrey root. By commencing the experiment soon after weaning they also ensured that the rats were ingesting comfrey at a time when they were most susceptible to liver damage from PAs. It is difficult to envision a situation in which a human subject would assimilate an equivalent amount of comfrey over a similar time span, or an equivalent time span in their lives. Deaths in the rats occurred at levels which for humans would be equivalent to the alkaloid from 19,880 leaves, or 28 times our body weight. So to extrapolate the results of Hirono's study to humans, it would be necessary to eat three ounces of fresh comfrey leaf every day for 56 years to induce any liver damage.

The Hirono study does not satisfy many of the criteria demanded for a rigorous assessment of carcinogenicity. Rats were fed comfrey leaf from 8 to 33% of their diet, thus all test levels exceeded the 5% maximum normally recommended for such trials. Test levels for the root were 0.5 to 4%. The maximum time of administration of the diet containing comfrey leaf was 600 days, which represents a very large proportion of the life of a laboratory rat. The comparative survival of the control group of animals was not reported. The fact that rats could be fed 33% comfrey leaves in their diet and still survive to old age is testimony to relatively low toxicity. How many drugs could survive such scrutiny?

13. Four cases of human veno-occlusive disease associated with the consumption of comfrey or comfrey-containing products are reported in the literature

The COT statement itself acknowledges that these reports are 'isolated and anecdotal and that the COT cannot be completely certain of a causal link with comfrey ingestion'. In fact, in the New Zealand (sometimes referred to as Australian) case, comfrey was not even in season during the 7-14 day period in which the New Zealand man was reported to have eaten the fresh leaves. The plants would have died back at least two to three months prior to the patient's admission to hospital in August 1985. The COT clearly has not carried out adequate research since the plant in question could not have been comfrey.

The remaining three cases do not constitute epidemiological evidence against comfrey; only evidence of potential idiosyncratic reactions to a high intake of comfrey, or of possible contamination of the comfrey crops or products with unknown toxins. For no other consumer product would this be considered adequate evidence to recommend a ban.

14. We consider that the [above] data are sufficient to warrant action in the interests of public safety

Action in the interests of public safety is always welcome. However, the banning of popular products for which there is a long tradition of safe use is not welcome. Other measures would be more appropriate, such as compulsory statements on *all* labels not to exceed the recommended intake, and government controls over PA content of comfrey products, in the same way that the alkaloid content of potatoes is controlled.

15. The central concern with comfrey is the concentrated forms

There are no concentrated forms of comfrey. No concentrating process beyond simple drying is used. In fact tablets and capsules contain significant proportions of excipient (fillers and binders), making them a less concentrated source of PAs. Comfrey leaf capsules contain negligible amounts of PAs (less than 0.06 g/kg), yet the government has banned these too.

16. The presentation of comfrey, as a food, in the form of tablets and capsules could be misconstrued by consumers as a medicine,

resulting in inappropriate use. The physical form of tablets gives greater opportunity for excessive intake

These do not constitute sufficient criteria for banning comfrey tablets and capsules. The presentation of oat bran in the form of tablets and capsules could be misconstrued by consumers as a medicine yet this does not warrant a ban on these products. Artificial sweeteners and many sweets are also in tablet form.

There is no evidence that the physical form of tablets gives greater opportunity for excessive intake. A small tablet is generally treated with more respect, through its association with medicines, than a tablespoon of powder.

UK medicines law does not dictate that consumer products shaped like medicines should be legislated as medicines. This is a Continental principle. The fact that the UK will be expected to 'harmonise' on medicines law with the rest of Europe at some later date should not be overlooked. MAFF has tried elsewhere to dress up harmonisation as 'consumer protection'[5]. It is unacceptable that this should be at the expense of the rights of UK consumers, or that the government should use comfrey in an attempt to drive a wedge into UK legal principles.

References

- [1] Anderson PC, McLean AE: Comfrey and liver damage. *Human Toxicology* 8(1):68-69, 1989.
- [2] Cheeke PR, Carlsson R: Evaluation of several crops as sources of leaf meal: Composition, effect of drying procedure and rat growth response. *Nutrition Reports International* 18(4):465-472, 1978.
- [3] Personal communications from these organisations to the Society for the Promotion of Nutritional Therapy and (ICM) to the Food Minister Nicholas Soames MP.
- [4] Hirono I, Mori H, Haga M: Carcinogenic activity of *Symphytum officinale*. *J Natl Cancer Inst* 61(3):865-868.
- [5] Lazarides L: Maastricht can seriously damage your health. *J Nutr Med* 3:351-354, 1992.
- [6] Personal communication from the Consumers' Association to the Society for the Promotion of Nutritional Therapy 24/2/94.
- [7] Personal communication from the National Consumer Council to the Society for the Promotion of Nutritional Therapy 13/1/94.
- [8] Personal communication from the British Herbal Medicine Association to the Society for the Promotion of Nutritional Therapy, March 1993.