

Update on Comfrey

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In two previous issues, properties of comfrey as a feed for rabbits were discussed. In the April, 1979 issue, a comparison of the composition and feeding value of comfrey and alfalfa was presented. In the July, 1979 issue, the significance of toxic alkaloids in comfrey was discussed. I have recently received some new information on comfrey, which I'll pass along in this article. I should point out at the outset that I'm not out to "get" comfrey. I like to think that I have an open mind, and hope that I am able to present this discussion in an unbiased manner. Some of the data now coming out is quite significant, and I feel that it should be brought to the attention of those who use or might plan to use comfrey. Whether you think that these research findings suggest that comfrey is safe or not safe is up to you. As I indicated in the last issue, I wouldn't use it, after seeing these reports.

As indicated previously, comfrey contains pyrrolizidine alkaloids. Dr. C.C.J. Culvenor, of CSIRO Australia (CSIRO is the Australian governments' research organization) has now identified eight pyrrolizidine alkaloids in comfrey (Culvenor, et al., 1979). These workers isolated a mixture of these alkaloids from comfrey, and administered them to rats. Repeated doses, given three times a week, caused severely impaired liver function. Continued administration resulted in hepatocyte megalocytosis, the characteristic type of liver damage caused by pyrrolizidine alkaloids.

Humans are susceptible to these alkaloids; as discussed in the July Newsletter, outbreaks of alkaloid poisoning have occurred in India, Afganistan, Africa, the West Indies, and in Arizona. In the last paragraph of their paper, Culvenor et al. conclude: "The pyrrolizidine alkaloid content of Russian comfrey provides ground for concern at the human consumption of this plant, especially by children because of the greater sensitivity of young animals to the effects of this type of alkaloid. The lack of reports of toxicity of this plant despite claims of dietary use over many years is not necessarily an indicator of safety. The effects of such alkaloids are cumulative and overt damage may be long delayed, thus preventing association with the plant cause."

Japanese workers have found comfrey to be carcinogenic (cancer-causing) to rats (Hirono, et al., 1978). These workers harvested comfrey, air-dried it, ground it and incorporated it into rat diets. They also fed comfrey roots. The leaves were fed at levels of 8, 16 and 33% of the diet. The roots were fed at levels of 8, 4, 2, 1, and 0.5% of the diet. The 4% comfrey root diet had to be altered to a lower level, because these rats developed signs of liver damage early in the experiment. Liver tumors (hepatocellular adenomas) developed in all groups fed diets containing comfrey leaves or roots. No liver tumors occurred in control animals not fed comfrey. The incidence of liver tumors was 86.3% in animals fed 8% comfrey

root, 80% in rats fed 1% comfrey root, and 33.3% in those fed 16% comfrey leaf. Liver lesions typical of pyrrolizidine alkaloid damage were encountered in many of the animals that did not develop tumors. Thus this study shows that both comfrey leaf and root can cause cancer, with the root being more potent than the leaf.

Finally, I just had a visit with Dr. D. Crout, of the University of Exeter, England. He is a chemist who has studied alkaloids in comfrey. He has worked closely with Mr. L.D. Hills, Director of the Henry Doubleday Research Association, who has promoted the use of comfrey as a human and animal food. Dr. Crout has measured these alkaloids in comfrey. He has shown a marked reduction in alkaloid content when comfrey is dried. Thus he feels that occasional use of dried comfrey, as in comfrey tea, probably is fairly safe. However, consumption of fresh green leaves, or fresh roots, would be accompanied by a much greater risk.

I will continue to bring new information on comfrey to you as it becomes available. I will only discuss research published in scientific journals. These journals review and evaluate submitted papers, and only accept those that were conducted using proper scientific technique and adequate controls, and statistical analysis. These new findings will probably cause considerable fervor among comfrey users and promoters. I do not wish to enter such debates, but rather will just report the scientific findings. If papers are published in scientific journals that show no deleterious effects of comfrey, I'll bring them to your attention also. The decisions on whether or not to use comfrey that you grow yourself is up to you. The FDA is now becoming interested in the toxic properties of comfrey; it is possible that in the future the sale of comfrey products may be regulated.

References

- Culvenor, C.C.J., M. Clarke, J.A. Edgar, J.L. Frahn, M.V. Jago, J.E. Peterson and L.W. Smith. 1979. Structure and toxicity of the alkaloids of Russian comfrey, a medicinal herb and item of human diet. (in press).
- Hirono, I., H. Mori and M. Haga. 1978. Carcinogenic activity of *Symphytum officinale* (comfrey). *Journal of the National Cancer Institute* 61:865-868.



Comfrey growing in a bird breeder's back yard.