Scientific Studies Showing Dangers of Alkaloids in Comfrey

With Some Rebuttals: Rebuttal is a statement that a claim or criticism is not true. It is an argument or proof to contradict or disprove something previously stated.

“The citing of earlier papers proceeds on the assumption of certainty, which, as we have seen, is not always as sure as it is portrayed. According to authors Bone and Pembery: Mohabbat, Culvenor and Hirono research reports are flawed to some extent, yet their conclusions are interpreted as sure.

In particular, as mentioned above, Hirono’s paper is regularly quoted as proof of the carcinogenicity (cancer causing) of Comfrey.

In 1978, Lawrence Hills of the ‘Henry Doubleday Research’ Institute published an article, reported in the British Medical Journal* 1979, which concluded that until further research clarified the long-term health hazards of Comfrey ingestion, ‘no human being or animal should eat, drink, or take Comfrey in any form.’

The report by Pembery was subsequently published in 1982 (1983) in which the foreword by Hills revoked the 1978 report, and Comfrey was declared safe. Many post 1982 papers on Comfrey quote the 1978 warning and fail to acknowledge the 1982 revocation.”


The following scientific reports are discussed: (in chronological order from older to recent)


5. ‘The Alkaloids of Symphytum x uplandicum (Russian Comfrey)’ by Culvenor, 1980.
6. ‘Structure and Toxicity of the Alkaloids of Russian Comfrey (Symphytum x uplandicum, Nyman), a Medicinal Herb and Item of Human Diet’ by Culvenor, 1980.


An new class of metabolite, with a pyrrole-like structure, has been demonstrated in the tissues of animals poisoned by Pyrrolizidine Alkaloids. There is some correlation between the degree of hepato-toxicity and the amount of 'pyrrole' found in the liver. Evidence has been found of the types of reactions such metabolites might undergo with tissue constituents. Certain Pyrrolizidine Alkaloids, such as heliotrine, lasiocarpine, and retrorsine, have long been known to cause chronic liver poisoning in animals, and the pathology has been well described.¹, ²

The 'metabolic pyroles' are partly excreted in urine, but some are also bound strongly to the tissues of the liver and to a decreasing extent, the lungs and other organs for 48 hours or more after being formed.

With the exception of rosmarinine, there is a rough correlation between the hepatotoxicity of the alkaloids and the amounts of pyrroles to which they give rise in vivo.

The following hypothesis is consistent with these results: The alkaloids themselves are not hepatotoxic. A proportion of the alkaloid (depending on its structure) is metabolized in the liver (by a process amounting to dehydrogenation) to a pyrrole-like derivative.²


(Correlation is a mutual connection between two or more things.)

'(In Vitro' means done in laboratory equipment as opposed to in/on a living animal that is called 'in vivo'.)

'This report is one of the first about Pyrrolizidine Alkaloids. Comfrey is not mentioned.'


"Preliminary investigation disclosed that the alkaloids were present mainly in the form of N-oxides. After reduction of the aqueous (water) acid solution of total base, the reduced bases were investigated.

Two pyrrolizidine alkaloids, symphytine (I), a new compound, and echimidine (II) have been isolated from the dried roots of Symphytum officinale. Both have a retronecine nucleus esterifed on the 7-hydroxyl group with angelic acid.