Pyrrolizidine alkaloids – hidden toxins in food and medicinal plants

Dr. Michael Rentzsch, Dr. Tina Zöllner, Dr. Michael Schwarz

PhytoLab GmbH & Co. KG, Dutendorfer Str. 5-7, 91487 Vestenbergsgreuth, Germany,
michael.schwarz@phytolab.de

It is well known that food (such as salad mixtures or honey) can be contaminated with pyrrolizidine alkaloids. But also some medicinal plants such as comfrey (*Symphytum officinale)*, butterbur (*Petasites)* and coltsfoot (*Tussilago farfara)*, used in medicinal teas, have been described to contain pyrrolizidine alkaloid and their N-oxides.

Some of these pyrrolizidine alkaloids act as hepatotoxic, mutagenic and/or cancerogenic agents after oral consumption and some modifications by by the human metabolism. Typical representatives are echimidine, senecionine and senkirkin.

The legislature has therefore decided that plants and preparations thereof can only be sold if it is guaranteed that the maximum daily intake of pyrrolizidine alkaloids remains below 1 microgram. Reference substances are required for identification and a reliable quantitative analysis PhytoLab has characterized a total of 13 different pyrrolizidine alkaloids and pyrrolizidine alkaloid N-oxides as primary reference substances according to international guidelines which are now commercially available.