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4'-O-METHYLPYRIDOXINE AND GINKGOLIDES AS BIOLOGICAL MARKERS OF *Ginkgo biloba* POISONING

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Ginkgo biloba belongs to the family of Ginkgoaceae. According to the traditional medicine, leaf extracts are used for the improvement of blood circulation and the enhancement of memory and concentration, while in some Asian countries, *Ginkgo biloba* seeds are consumed as food (raw or toasted products). From some case reports, it is known that, when consumed in large amounts, *Ginkgo* seeds can cause side effects, like vomiting and tonic convulsions, as occurred to a 2-years-old boy admitted to the hospital of Mendrisio (Switzerland). Serum and urine were collected at 14 hours after exposure; a serum sample was also taken 20 hours after the ingestion. Serum samples were analyzed for the determination of 4'-O-methylpyridoxine (MPN), which is the molecule identified as the most important responsible for poisonings due to *G. biloba* seeds. MPN acts through the inhibition of the γ -aminobutyric acid (GABA) production. The quantification of MPN was performed by HPLC-FLD with isocratic elution in blood and urine. The urine samples were also analyzed by LC-MS using an ion trap mass spectrometer for the research of ginkgolide A, ginkgolide B, ginkgolide C and bilobalide, markers of *Ginkgo biloba* exposure. Sera analysis showed the presence of MPN in serum at the concentration of 16.52 ± 1.55 ng/mL and 6.18 ± 0.69 ng/mL (14 and 20 hours after exposure, respectively), confirming that poisoning was due to *Ginkgo* seeds. Urine analysis by LC-MS allowed the detection of ginkgolides A, B and C, but not bilobalide. The methods developed in this study were suitable for the determination of both MPN and ginkgolides in human biological fluids, allowing quick identification of poisoning by *G. biloba* seeds.

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