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Letter to the Editor

Intoxication from *Ferula sumbul* leaves in a mother and her infant

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To The Editor

The genus *Ferula* comprises approximately 130 species that are distributed from the Mediterranean region to Central Asia. This genus is well documented as a source of biologically active compounds such as coumarins, terpene alcohols and sesquiterpene derivatives (1). Some of the isolated compounds of the dried roots of *Ferula sumbul* have anti-HIV activity and also demonstrate weak inhibition of cytokine release (1). Powder from *F. sumbul* roots are mixed with honey and used as aphrodisiac by men in some cultures (2). We report a case of a mother and her infant who over ingested *F. sumbul* leaves. To the best of our knowledge, this is the first report about intoxication with *F. sumbul* leaves in the literature.

A 5-month-old female infant presented to our pediatric emergency department with the chief complaint of vomiting that started 2 hours after breastfeeding. Her mother also presented to the adult emergency department for vomiting. A thorough history revealed that *F. sumbul* leaves were harvested by mistake instead of green onion from the family garden. The mother, son and husband ate uncooked *F. sumbul* leaves. The Grandmother realized that the ingested plant was not green onion after the family had already consumed it. The mother began to vomit 2 hours after ingestion. Past medical histories of baby and mother were unremarkable. On physical examination of the baby, the vital findings were normal. Head circumference, body weight and height were within normal limits. No abnormal findings were noted on examination. Laboratory examination showed no abnormalities in complete blood count, serum electrolytes, coagulation parameters, renal and liver function tests. The infant was hospitalized and intravenous fluid was given for 2 hours. No medication was administered. Vomiting improved after a few hours without change in clinical status. Both the mother and infant were discharged home after 5 hours in emergency department.

F. sumbul is a rich source of coumarin (1). Hepatotoxicity including elevated serum transaminases and hepatomegaly has been reported following coumarin treatment (4). In our case, there was no evidence of hepatotoxicity. Previous studies have also noted coumarins' MAO inhibiting effect (3). After oral administration coumarin is rapidly absorbed from the gastrointestinal tract and extensively metabolized by hepatic CYP2A6 to 7-hydroxycoumarin, which is excreted in the urine. The half-life for the elimination of coumarin is 1–2 hours in humans (4). We hypothesized that vomiting 2 hours after oral intake of *F. sumbul* is due to MAO-A inhibition causing high serotonin levels and stimulating $5HT_3$ receptors. MAO-A inhibition can also cause high norepinephrine and epinephrine levels, but we did not see significant adrenergic side effects in these patients (3). Other family members that ate *F. sumbul* leaves did not

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show any symptoms. Possible explanations could be that polymorphisms of CYP2A6 enzyme activity are common leading to variable metabolism and the amount of *F. sumbul* leaves ingested may also have been variable among individuals. Minor amounts of coumarin derivates can pass into breast milk, which could possibly explain the symptoms in the infant (5). Coumarin metabolite 7-hydroxycoumarin can also be detected in the urine sample but many facilities including ours are not capable of performing this test.

In conclusion, we would like to emphasize that over ingestion of *F. sumbul* leaves causes vomiting in adults without severe symptoms. We also hypothesize that metabolites of *F. sumbul* can be transmitted to breast milk and effect infants.

References

[1] Zhou P, Takaishi Y, Duan H, Chen B, Honda G, Itoh M, et al. Coumarins and bicoumarin from *Ferula sumbul*: anti-HIV activity and inhibition of cytokine release. Phytochemistry 2000;53(6):689–97.

[2] Sezik E, Yesilada E, Shadidoyatov H, Kulivey Z, Nigmatullaev AM, Aripov HN, et al. Folk medicine in Uzbekistan. I. Toshkent, Djizzax, and Samarqand provinces. J Ethnopharmacol 2004;92(2–3):197–207.

[3] Gnerre C, Catto M, Leonetti F, Weber P, Carrupt PA, Altomare C, et al. Inhibition of monoamine oxidases by functionalized coumarin derivatives: biological activities, QSARs, and 3D-QSARs. J Med Chem 2000;43(25):4747–58.

[4] Lake BG. Coumarin metabolism, toxicity and carcinogenicity: relevance for human risk assessment. Food Chem Toxicol 1999;37(4):423-53.

[5] Gulba DC. Anticoagulant drugs. Herz 1996;21(1):12–27 (in German).