

Study of embryotoxicity of *Perovskia abrotanoides*, an adulterant in folk-medicine, during organogenesis in mice

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Abstract

Aim of the study: *Perovskia abrotanoides* is a medicinal herb which traditionally has been used as a topical application to treat leishmaniasis in Iran. Due to similarities of the flowers of *Perovskia abrotanoides* and *Echium* species, it is added as an adulterant to *Echium* preparations in Iran. *Echium* flowers have been used in Iranian traditional medicine as an "anti-stress", tranquilizer, and energizer drink, fighting common cold and bronchitis particularly during pregnancy. In this study, the in vivo embryotoxicity of 0.120 and 0.20 g/kg of ethanolic and aqueous extracts of *Perovskia abrotanoides* during organogenesis in mice has been investigated. Materials and methods: Maternal body weights were recorded and pregnant females were observed daily throughout gestation. After cesarean section, fetuses were weighed, lengthed and examined for gross external malformations. Others were fixed then stained with Alcian blue and Alizarin red to view any skeletal malformations. Results: Our results indicated that this herb causes minimal maternal toxicity, while resorption, stillborn, fetal malformations including polydactyly, spina bifida, aglossia, tarsal extensor, gastroschisis, and numerous skeletal abnormalities were detected particularly in the ethanolic extract groups. Specific skeletal abnormalities based on type of extract were also observed. Conclusions: Since *Perovskia abrotanoides* is widely used in traditional medicine intentionally or inadvertently, it is advisable its use during pregnancy should be avoided and strict regulations are imposed to prevent its addition to commercial preparations of other herbal products. © 2008 Elsevier Ireland Ltd. All rights reserved.

Author keywords

Echium; Embryotoxicity; Mice; *Perovskia abrotanoides*; Teratogenicity

Indexed Keywords

EMTREE drug terms: alcian blue; alcohol; alizarin; herbaceous agent; *Perovskia abrotanoides* extract; plant extract; unclassified drug

EMTREE medical terms: animal experiment; animal model; article; body weight; cesarean section; controlled study; embryo resorption; embryotoxicity; female; fetus malformation; gastroschisis; gestation period; herb; in vivo study; male; mouse; nonhuman; organogenesis; *Perovskia abrotanoides*; polydactyly; pregnancy; skeleton malformation; spina bifida; staining; sustained release preparation; traditional medicine

MeSH: Abnormalities, Drug-Induced; Animals; Bone and Bones; Drug Contamination; Female; Fetus; Lamiaceae; Male; Medicine, Traditional; Mice; Plant Extracts

Medline is the source for the MeSH terms of this document.

Species Index: *Echium*; Mus; *Perovskia abrotanoides*

Chemicals and CAS Registry Numbers: alcian blue, 120-44-5; alcohol, 64-17-0; alizarin, 77-48-0; Plant Extracts

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