

Short communication

Hemp (*Cannabis sativa* L.) and abortion

A. Merzouki ^{a,c,*}, F. Ed-derfoufi ^b, J. Molero Mesa ^c

^a *Laboratory of Ethnobotany, Department of Biology, Faculty of Sciences, BP 2121 Tétouan, Morocco*

^b *Department of Biology, Faculty of Sciences, BP 524 Oujda, Morocco*

^c *Botánica, Faculty of Pharmacy, Campus de Cartuja, 18071 Granada, Spain*

Received 29 October 1999; received in revised form 6 July 2000; accepted 29 July 2000

The correspondence of Zias et al. (1993), related the finding of carbonized matter containing tetrahydrocannabinol (THC), the primary psychoactive component of marijuana, in the abdomen of an adolescent girl who apparently died in childbirth around 400 AD. The researchers's hypothesis was that *Cannabis* was administered to women in child birth to relieve pains and increase uterine contractions because at this time assisting women in labour by physicians was prohibited. Pioreschi and Babin (1993) criticized the hypothesis of Zias et al., arguing that in ancient medicine many plants were used for this purpose. They said that if *Cannabis* was used in a difficult delivery, it doesn't prove that it was used because of its pharmacological properties stated, and they asked why Zias et al. believed 'that in antiquity physicians were prohibited by law from attending women in labour'. These authors concluded that in ancient Mesopotamia physicians presumably

attended deliveries as they performed caesarean sections.

In the Rif, the northern zone of Morocco, the *Cannabis* crop is linked to local population history. Herbal remedies were commonly used to treat different ailments because many communities and villagers live in remote areas where health facilities are not available. An intensive and systematic survey was conducted in fourteen districts of the Rif region for folklore information about drugs plants used for abortion.

Midwives, whose knowledge in attending women in childbirth was very appreciated, control the use of traditional herbal preparations to provoke abortion in the Rif zone. Eight midwives from 58 to 74 years old were inquired, each one having up to 20 of experience. Interviews reveal that each one had assisted around ten women in delivery per year and that they recognized the use of abortive preparation in case of accidental pregnancy although it was prohibited by muslim religion. In their careers our eight informants have practiced abortion with success; they recognized around 14 abortion cases, a number that we consider below to the real situation. Ethnobotanical data shows that two polyherbal preparations were used to induce abortion.

* Corresponding author. Fax: +34-958-243912.

E-mail address: merzouki@platon.udr.es (A. Merzouki).

1. First herbal preparation

(*Cannabis sativa* L./Cannabaceae; *Atractylis gummifera* L./Asteraceae; *Ecbalium elaterium* (L.) A. Rich./Cucurbitaceae; *Conium maculatum* L./Apiaceae; *Hyoscyamus albus* L./Solanaceae; *Datura stramonium* L./Solanaceae and *Withania somnifera* (L.) Dunal./Solanaceae). Two forms of administration: a paste is made from different plant parts and inserted into the vagina or a paste is placed in the fire and the smoke directed to the woman vagina.

2. Second herbal preparation:

(*C. sativa* L./Cannabaceae; *Atropa baetica* Wilk./Solanaceae; *Nerium oleander* L./Apocynaceae; *Ruta montana* L./Rutaceae; *Peganum harmala* L./Zygophyllaceae; *Agave americana* L./Amaryllidaceae and *Urginea maritima* L./Liliaceae). A decoction made from all plant parts and given to empty stomach causes abortion of 2–3 month pregnancy.

Ethnobotanical and bibliographical data shows that all plants associated with *Cannabis* were classified as highly toxic, narcotic and also with abortifacient properties in Moroccan traditional medicine (Merzouki et al., 2000, 1999; Merzouki and Molero Mesa, 1999; Merzouki et al., 1997). All traditional healers inquired in previous ethnobotanical studies confirmed that abortifacient preparations are dangerous and many cases of death by intoxications were related.

1. *A. gummifera* L./Asteraceae, Addad, in berber language Ichkhiss in arabic, mediterranean plant, a very poisonous plant. Burning of roots is used to facilitate delivery, a decoction of roots is taken for orally-induced abortion. Fifty intoxication cases were observed by Sandali (1970) and Berrada (1979), whose dressed a clinical diagnostic of intoxication by *A. gummifera*.

2. *E. elaterium* (L.) A. Rich./Cucurbitaceae, vernacular name *Fegouss lahmir*. Very poisonous plant (Bruneton, 1996), fruit ground and made into a paste and inserted in vagina to induce abortion, or the pulp from two fruits is ingested by women in pregnancy to induce abortion.

3. *C. maculatum* L./Apiaceae, named Sikran in arabic. Narcotic and toxic plant. Root is known in Moroccan traditional medicine as toxic, used in the Gharb zone (west of Morocco) for abortion as a paste inserted in vagina. Accidental intoxications occurred because plant morphology was similar to *Petroselinum sativum* species, commonly used as spice in Morocco. Criminal intoxications are cited by Chamot (1945),

4. *H. albus* L./Solanaceae, vernacular name *ganguit mediterranean* plant. In Moroccan traditional medicine *Hyoscyamus* species are known for their sedative and anesthetic properties. Plant toxic, mixed with *A. gummifera*, *Datura* and arsenic to make poisonous preparations.

5. *D. stramonium* L./Solanaceae, vernacular name *Ghayta*, toxic plant with narcotic properties.

6. *W. somnifera* (L.) Dunal./Solanaceae, vernacular name *Aânab addid.*, plant with narcotic and sedative properties, seeds are toxic. Mathieu and Maneville (1952) mentioned that the root powder is used in Casablanca for abortion.

7. *Atropa baetica* Wilk./Solanaceae, vernacular name *Tabba*. Plant with narcotic and toxic properties. Plant leaves mixed with *Cannabis* leaves and bracts to prepare kif, a traditional pipe smoked for its narcotic effects.

8. *N. oleander* L./Apocynaceae, Ad-defla, in arabic. Leaves mixed with *Peganum harmala* fruits in infusion and administered orally provoke abortion. Mathieu and Maneville (1952), mentioned that midwives of Casablanca used a little branch of *N. oleander* to provoke dilatation of uterus neck and to prick the amniotic cavity to induce abortion.

9. *R. montana* L./Rutaceae, vernacular name *L'fljel*. Mediterranean plant. Abortifacient and toxic properties of *Ruta* were known by women, it's used as orally-decoction or as a paste inserted periodically in vagina. Mathieu and Maneville (1952), mentioned that in Casablanca a decoction of *R. montana* and *Cannabis* leaves taken orally provoke abortion.

10. *P. harmala* L./Zygophyllaceae, vernacular name *L'harmal*, Seeds are toxic, their abortive power was mentioned by Bellakhdar (1997) decoction of a handful of the seed is taken orally to provoke abortion.

11. *A. americana* L./Amaryllidaceae, vernacular name *Assibar*. Roots have emetic and abortive properties (Mathieu and Maneville, 1952). Abortive properties were confirmed by Kerharo and Adams (1974).

12 *U. maritima*, named Bssal al far, (rat oignon, because its used to kill rats) In Morocco, women of mountain villagers know the abortive power of *Urginea* bulb.

Fruits of barley (*Hordeum vulgare* L./Poaceae) and fenugreek (*Trigonella foenum-graecum* L./Fabaceae) are soaked during a night in water containing a bulb of *Urginea* and ingested by pregnant women to provoke abortion. Bellakhdar (1997) mentioned cases of death by intoxication concomitant with abortion attempts.

Ethnobotanical research carried out in the Rif zone since 1992 about medicinal plant remedies reveals that *Cannabis* plant was used traditionally to treat various ailments (Merzouki et al., 1999; Merzouki and Molero Mesa, 1999), but no records exist about the abortive effects of hemp plant. Administered in addition to the above cited plants which are characterized by various degree of toxicity, it may provoke abortion. From the twelve cited species which compose these two abortifacient preparations, nine plant species were known in Moroccan traditional medicine as possessing abortive properties (plants no 1, 2, 3, 6, 8, 9, 10, 11, 12). As deduced from scientific literature, *Cannabis* relieves pain, however, we don't agree that hemp plant holds uterine contraction potentialities. Pharmacological study of the effects of these two herbal preparations on pregnant rats and on isolated uterus are in course in collaboration with a laboratory of animal physiology.

Acknowledgements

We are grateful to midwives whose confidence helped to make possible this study.

References

- Bellakhdar, J., 1997. La Pharmacopée Marocaine Traditionnelle. Ibis press, Paris.
- Berrada, A., 1979. Intoxication par le chardon à glu ou addad dans la province de Fàs. Thèse de doctorat, Faculté de médecine, Université de Rabat.
- Bruneton, J., 1996. Plantes toxiques. In: Paris (Eds.), Végétaux Dangereux Pour les Hommes et les Animaux. Technique et Documentation Lavoisier, pp. 915.
- Chamot, A., 1945. La toxicologie au Maroc. Mémoire de la Soc. Sci. Nat. du Maroc, Rabat, XLVII, pp. 826.
- Kerharo, J. Adams, J., G., 1974. La Pharmacopée Sénégalaise Traditionnelle. Eds, Vigot Frères, Paris pp. 1011.
- Mathieu, J., Maneville, R., 1952. Les Accoucheuses Musulmanes Traditionnelles de Casablanca IAC Paris. pp. 211.
- Merzouki, A., Ed-derfoufi, F., Molero Mesa, J., 2000. Contribution to the knowledge of Rifian traditional medicine: II: folk medicine in Ksar Lakbir district (NW Morocco). *Fitoterapia* 71 (3), 278–307.
- Merzouki, A., Molero Mesa, J., 1999. Le chanvre (*Cannabis sativa* L.) dans la pharmacopée traditionnelle du Rif (Nord du Maroc). *Ars Pharmacology* 4, 233–240.
- Merzouki, A., Ed-derfoufi, F., El Allali, A., Molero Mesa, J., 1997. Wild medicinal plants used by local Bouhmed population (Morocco). *Fitoterapia* 5, 444–460.
- Merzouki, A., Ed-derfoufi, F., Molero Mesa, J., 1999. A polyherbal remedy used for respiratory affections in Moroccan traditional medicine. *Ars Pharmacology* 40, 31–38.
- Prioreschi, P., Babin, D., 1993. Ancient use of *Cannabis*. *Nature* 364, 680.
- Sandali, A., 1970. Intoxication à l'Addad (à propos de 6 cas). Thèse de doctorat. Faculté de Médecine, Université de Rabat.
- Zias, J., Stark, H, Sellgman, J., Levy, R., Werker, E., Breuer, A., Mechoulam, R., 1993. Early medical use of *Cannabis*. *Nature* 363, 215.