

Effects of Jujuba essential oil on hair follicle of the skin of Balb / c mice

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Background and Aim: This study was to evaluate the effects of different concentrations of jujube seed oil on the hair follicle in BALB/c mice.

Materials and Methods: In this experimental study, 40 male BALB/c mice (2.5 months of age) were used. A 4 cm² of the back of animal's body shaved with wax. The mice were then divided into five groups (n=8). The first three groups received Jujube oil concentrations 5%, 10% and 15%, respectively. The fourth and fifth groups were selected as the base and sham control groups, respectively. The animals received topical treatment of jujube seed oil for 12 day. Base and control groups received Ocerin and water respectively. After passing 12 day, back skin of animals was shaved again by wax and the treatment was repeated again for further 12 days. At 13th day the animals were sacrificed and samples were collected and tissue processing and staining were performed. Data were analyzed by the ANOVA and Tukey statistical tests with the 22th version of SPSS software.

Results: This study showed that mean number of hair follicles in the skin of 5% jujuba essence treated group (37.75±6.6), 10% jujuba (42.75±8.3), 15% jujuba (41.25±6.2) was meaningful higher than the base (18.50±3.1) and sham (15±2.1) groups. Furthermore, we also showed that the number of hair papilla, fibroblast cells and collagen fibers were increased in the treatment groups as compared with the control groups.

Conclusion: Based on our study, Jujube essential oil can have very positive effects on improving hair growth and can be used for hair losing clinical trial.

Key Words: Jujuba, Hair follicle, Skin, Mice

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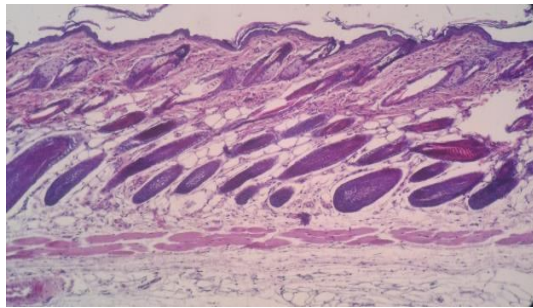
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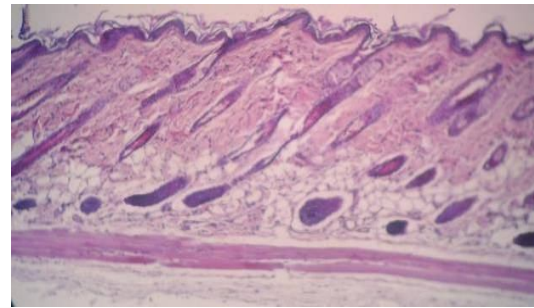
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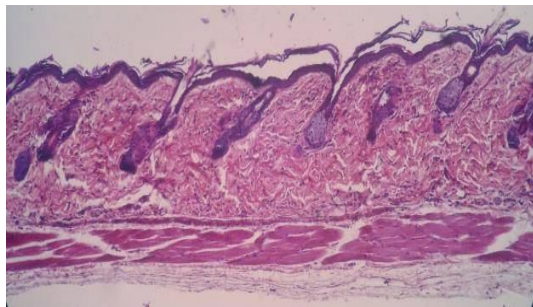
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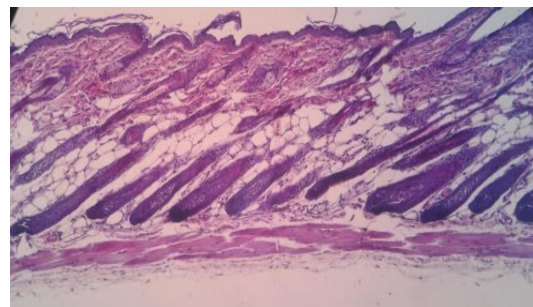
شکل 2- برش میکروسکوپی پوست موش‌های گروه 2
(کرم حاوی اسانس 10%) با رنگ‌آمیزی هماتوکسیلین -
اُنوزین 10x



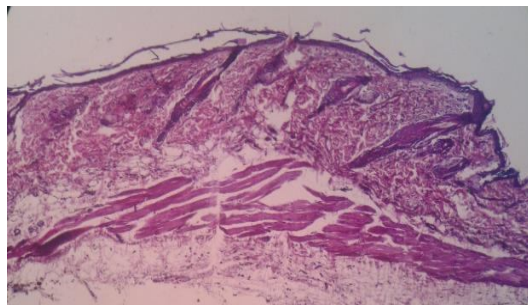
شکل 1- برش میکروسکوپی پوست موش‌های گروه 1
(کرم حاوی اسانس 5%) با رنگ‌آمیزی هماتوکسیلین -
اُنوزین 10x



شکل 4- برش میکروسکوپی پوست موش‌های گروه 4
(کنترل پایه) با رنگ‌آمیزی هماتوکسیلین -اُنوزین 10x



شکل 3- برش میکروسکوپی پوست موش‌های گروه 3
(کرم حاوی اسانس 15%) با رنگ‌آمیزی هماتوکسیلین -
اُنوزین 10x



شکل 5- برش میکروسکوپی پوست موش‌های گروه 5
(کنترل معمول) با رنگ‌آمیزی هماتوکسیلین -اُنوزین 10x

در دو گروه کنترل پایه ($13/22 \pm 1/67$ میکرومتر) و کنترل معمولی بیشتر بود؛ ولی این اختلاف از نظر آماری معنی‌داری نبود، (جدول 1).

نتایج این تحقیق نشان داد که میانگین قطر فولیکول‌های مو در پوست گروه تحت درمان با کرم حاوی اسانس 5%، 10% و یا 15% عناب، از میانگین تعداد فولیکول‌ها در پوست

- 19- Sumanth M, Bhargavi YR. Evaluation of wound-healing effect of *Ziziphus mauritiana* L. leaf extract in rats. *Int J Green Pharm*. 2014; 8(4): 263-6.
- 20- Asgarpanah J, Haghighat E. Phytochemistry and pharmacologic properties of *Ziziphus spina christi* (L.) Willd. *Afr J Pharm Pharmacol*. 2012; 6(31): 2332-9.
- 21- Goyal R, Sharma PL, Singh M. Possible attenuation of nitric oxide expression in anti-inflammatory effect of *Ziziphus jujuba* in rat. *J Nat Med*. 2011; 65(3-4): 514-8.