The Effect of Tarragon Extract on Histopathological Changes in Female Rat Ovarian Tissue

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ABSTRACT

Introduction: Tarragon plant aster family (Asteraceae) that is a multiple of medical expenses. In this study, tarragon extract on histological structure of the ovaries in rats were studied. Methods: 45 male adult Wistar rats (2.5 months) weighting 190 ± 15 g were used in these experiments. Rats were divided into five groups (n=9) include: control, sham, experiments 1, 2 and 3 respectively. Control (without drug), sham : rats in this group received saline solution orally for 14 days through gavages in a single dose (0.5 ml), experimental 1, 2 and 3 respectively with Tarragon extract in doses 500, 1000 and 2000mg/kg body weight orally for 14 days through gavages in a single dose (0.5 ml). Groups of rats after treatment for ovarian tissue was dissected and studied parameters include the number of primary follicles, primordial follicles, corpus luteum and atretic follicles. Results: The results showed a significant reduction in the number of primordial follicles and the corpus luteum in the experimental group than the control group (P<0.05). Conclusion: The results of this study show that tarragon has harmful effects on ovarian tissue, so care must be taken in its use during pregnancy.

Key words: Tarragon, Ovary, Tissue, Rat.

Introduction

Chemical largely takes the day, but complications such as autoimmune phenomena and the strength of continuous use, the drug has been indiscriminate and arbitrary and prolonged use of drugs and in some cases cut consumption, which can cause other side effects of the disease can be more dangerous [33]. In recent years the use of herbal medicines side effects of drugs, researchers worldwide are shunted [1]. Several studies have shown that women tend to use herbal medicines are currently and often repeatedly for various problems such as anxiety, dysmenorhea, menopausal symptoms, menstrual disorders, mood disorders, and the prevention of osteoporosis, regardless of the possible side effects of herbs are used. Among the issues that must be considered when taking herbal medicines is their teratogenic effects, pregnancy and birth [24,23]. One of these herbs have traditionally been used as a tarragon plant in the genus Artemisia L. Belongs to the Asteraceae family, is an annual and perennial herbaceous plants of 34 species that are scattered throughout the country. Such dracunculus L. Artemisia dracunculus name and English name Wide dragon, Estragon, Tarragon an automobile in there, but the crops are planted, and [3]. It has been used to increase appetite [8]. Tarragon is an effective free radical cleansing oil [14,16]. The plant, due to strong antioxidant and free radical cleanup has protective effects on the liver against harmful agents and is capable of increased levels of liver enzymes AST and ALT cut. Tarragon also has anti-fungal and anti-tumor effects [27]. Tarragon extract as agent for the treatment of diabetes is also used [8]. Moreover, it has the effects of anticoagulant and antihyprlipidemia [27]. Tarragon extract in animal experiments on mice, could inhibit the effects on skin carcinogenesis of banzopyron. Also, protecting against Tarragon property has dangerous rays. Tarragon routine in order to prevent blood clots, inflammation, spasms, hypertension and atherosclerosis (hardening of the artery walls) is effective. For the tarragon in the U.S. to prevent atherosclerosis, hypertension, diabetes and allergy were used [31]. Tarragon is rich in iodine, volatile oils, estragol, anethole, terpenes, eugenol, pinene, limonene, vitamins A and C and mineral salts are [22, 7]. Fresh tarragon oil, which contains 60 to 70 percent to 3 percent methyl estragol and some Parametoxy cinnamaldehyde (bitter substance), is.

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[30], which seems to be a potent anticancer and anti-atherosclerosis, is related to the plant [18].

Materials and Methods

In all of the research ethics of working with laboratory animals has been observed. A total of 45 adult female wistar rats weighing 190±15 g and age were taken two and a half months. A week before the test was given to the animals to adapt to the new circumstances. Animals in the experimental conditions of temperature 22 ± 2 º C and 12 hours light and 12 hours dark cycle were used rodent food and food and water were free. 0.5ml sample volume at 9 am each day for 14 days by gavage. For preparation of extract Tarragon leaves in dry conditions away from direct sunlight and then the powder. 50.50 per 500 grams of dried tarragon 96% ethanol and distilled water were mixed maceration method and were maintained in vitro for 48 h. Then, after filtered, using Rotary evaporator, and the dried extract was evaporated alcohol. During the experiment the values obtained from the dried extract was dissolved in distilled water and thus different doses (500, 1000 and 2000 mg /kg body weight) were tested for oral administration to rats [13].

The rats were randomly divided into five groups of nine, including:
- Control group (C): The group was kept in normal without any medication.
- Sham group (S): The group that received saline solution.
- Experimental group 1 (E1): a group that received 500 mg/kg body weight extracts of tarragon.
- Experimental group 2 (E2): a group that received 1000 mg/kg body weight extracts of tarragon.
- Experimental group 3 (E3): a group that received 2000 mg/kg body weight extracts of tarragon.

After the initial period, the rats in all groups after anesthesia and ovarian tissue dissected out and were stable in buffer solution of 3%. Using examples of common practices tissue, cut with a thickness of 5 microns prepared by microtome and stained for Hematoxylin - eosin were prepared. The number of primary follicles, primordial follicles, and corpus lutein and artistic follicles were counted and quantitative data obtained, presented as mean ± SEM Significant differences between groups by ANOVA and Duncan's test at a significance level (P<0.05) was determined by using SPSS version 15.

Results:

Histological results obtained in this study showed that the number of primordial follicles in the group receiving the highest dose Tarragon extract (2000mg/kg B.W) has decreased compared to the control group and this decrease is significant(P<0.05)(Figure 1).

![Fig. 1: The number of primordial follicles Columns contain at least one letter in common are not significantly different](image.png)

Single-layer primary follicles (Unilaminar) in the experimental groups receiving different amounts of tarragon extract (500, 1000 and 2000mg/kg B.W) is not significantly different than the control group (Figure 2).
Fig. 2: The number of single-layer primary follicles Columns contain at least one letter in common are not significantly different

Multi-layer primary follicle (Multilaminar) in the experimental groups receiving different amounts of tarragon extract (500,1000 and 2000mg/kg B.W) is not significantly different than the control group (Figure 3).

Fig. 3: The number of multilaminar primary follicles Columns contain at least one letter in common are not significantly different

The number of corpus luteum in the experimental group received a maximum dose Tarragon extract (mg/kg 2000 B.W) has decreased compared to the control group (Figure 4).
Atretic follicles in the group receiving the highest dose Tarragon extract (mg/kg2000 B.W) has increased compared to the control group (Figure 5).

**Discussion:**
Recent studies have shown that certain herbs can on all organs and body systems including the reproductive system also have devastating effects and contrary to what all the herbs that are useful in perception [32]. Tarragon herb in traditional medicine as a remedy rule is binding and the use of this herb during pregnancy due to the possibility of abortion is banned [9]. Their results show that the compounds are potent anti-inflammatory activities Tarragon [25, 10]. Eugenol, anethole and flavonoids (quercetin and rutine), including important anti-inflammatory and antioxidant compounds found in the leaves of tarragon and is known as ovulation is an inflammatory process [5, 4] and thus extract its antispasmodic properties make it anovulation or decreased. The number of primordial follicles in the ovaries of the experimental groups treated with Tarragon extract had significantly decreased compared to controls. These findings about the herb tarragon inhibitory effect on cancerous tumors and its relationship to cell death match. In addition to its cytotoxic effects on microorganisms Tarragon extract has been proven, the report states that Tarragon had strong cytotoxic effects and will cause loss of bacteria and fungi [21, 16]. Tarragon extract flavonoids reduces nitric oxide seems to be due to the
effects of nitric oxide-producing enzymes and genes and the nitric oxide can affect many processes, including cell division, so it can lead to changes in the rate of change in behavior and a reduction in the number of cells [28]. ISO enzyme active ovaries producing nitric oxide in various sectors in which these activities are controlled by gonadotropins [2]. Nitric oxide in the ovaries of gonadotropin takes effect, but its effect on the hypothalamus [29]. Place of nitric oxide-producing neurons in the hypothalamic GnRH neurons are in close proximity [2]. Nitric oxide also appears to affect the ovarian artery [6]. So as mentioned tarragon reduction to nitric oxide and thus reduces the amount of gonadotropin hormone in follicle growth are very effective. It also stated that in the past have shown that nitric oxide on ovulation and ovarian hormone inhibition of NO production in the ovary, ovulation rate in rats greatly reduced [15]. Corpus luteum in the ovaries of the experimental group than in the control group had a significant reduction that result of the research conducted in 2009 by Salah al Akpantah in 2005 is consistent. The researchers showed that flavonoids are the major compounds present in tarragon process to inhibit ovulation in rats [5, 4]. Ovulation is an inflammatory process [19]. So part of tarragon in the reduction of the effects of anti-inflammatory is from flavonoids content. Mechanism of inhibition of cyclooxygenase by flavonoids is reported to inhibit ovulation process [5]. Cyclooxygenase enzyme, an enzyme essential for follicle rupture and ovulation graph [20]. The enzyme produced from arachidonic acid to prostaglandins, makes the cell membrane phospholipids. Two cyclooxygenase isoenzymes COX-1 and COX-2 is. Anti-inflammatory compounds function through inhibition of COX-2 is applied [26]. Deficiency of the enzyme COX-2, the reproductive system (ovulation and fertilization) in rats makes it difficult [11]. Flavonoids also inhibit the cyclooxygenase enzyme nitric oxide via inhibition of gene expression as well as the manufacturer, it can reduce, So the above is quite logical to reduce the primitive corpus luteum and follicles.

Conclusions:

According to the survey conducted in this study can be stated that tarragon has a destructive effect on the ovarian tissue and the devastating effects of the active ingredients that make the most of the flavonoids. As a result of its use during pregnancy should be considered more carefully.

References