Effect of ginger alcoholic extract on the ovary tissue in quail

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Abstract. This research was carried out in quail in the laboratory of histopathology diseases during four months. The objectives of this study was to detecting the effects of the addition of the alcohol extract of ginger to ovary tissue of quail. The two groups of birds were in almost similar weights and were placed in cages. Each group consisted of 8 quails. The first group (control group) fed on regular feeding without adding alcoholic extract of ginger. The second group (treated group) fed on the same normal food after adding the alcohol extract of ginger at a concentration of 300 mg / kg. The results indicated that ginger have positive effects on folliculogenesis.

Keywords. Ginger, Ovary, Folliculogenesis.

1. Introduction

The cultivation of medicinal and aromatic plants and herbs has spread in most parts of the world and has been used for their medicinal effectiveness and quick cure for diseases which are used as whole herbs, powders, or aqueous or aquatic or oily extracts [1, 2, 3]. Zinger is a plant that is found in the warm regions. Rizhomes are used under the soil and contain volatile oils with pungent smells and pungent taste. They contain the ginger root nodes, which are the most important parts of the plants [4, 5, 6].

2. Materials and Methods

2.1. Preparation of the alcoholic extract of ginger

The ginger bought from the local markets and cut the raw ginger into very small pieces, dissolve 30 g of raw material in alcohol to get the ginger extract in 70 ml of 96% of ethyl alcohol and place in a clean glass jar in a dark place for at least two weeks, the solution is then filtered with Whatman¹ filter paper, the solution is then placed in the rotary evaporator, at a temperature of 45 ° C for the purpose of extracting. The solution was then placed in an electric oven at 45 ° C for 20 minutes to dispose of the remaining alcohol. After extracting the extract weighed by a sensitive balance and stored in clean containers [7].
2.2. Dissection of birds

A total of 16 quail birds at ages 15 weeks, divided into two groups of 8 birds each, the first as a control group and the second treated with alcoholic extracts of ginger concentration (300 mg/kg) (treated group). The birds were dissected and the ovary removed and fixed in 10% formaldehyde.

2.3. Histological preparation

The methods of [8, 9, 10] were employed in the histological technique of the present study, the chemical and stain used: 10% Formaldehyde, Ethyl alcohol; ascending concentrations of ethyl alcohol 30%, 50%, 70%, 80%, 90% and 95% using distilled water. Alcoholic eosin stain. Harris Hematoxylin stain. Paraffin wax methods used according to [9, 10] as the following; Fixation of the specimens in a 10% formalin solution for 24 hours. Washing with tap water, dehydration by ascending concentrations of ethyl alcohol, clearing with xylene, infiltration and embedding with paraffin wax, melting point 58°C, sectioning at 7 micrometer using Rotary Microtome. Staining with routine stain (H&E) then Dextrin Plasticizer Xylene (D.P.X) used as a mounting media. Finally, microscopic examination and photography; Histological slides were examined using a light microscope at various magnification powers suit for the current study requirements. The microscopic slides were selected with a digital microscope equipped with a digital camera and a standard 12-megapixel Canon camera was used.

3. Results and Discussion

This The results of the current study showed some effects of alcohol extract of ginger in the ovary tissue of the quail (Figure 1, 2, 3). Birds fed on a standard diet with an alcoholic extract of ginger at a concentration of 300 mg/kg, showed some changes represented by an increase in the size of the ovaries, improvement in the fertility rate, as well as an increase in sexual receptivity and early ovulation by the birds [2, 11].

Figure 1. Transverse section passes through the ovary of quails treated with alcoholic extracts of ginger concentration (300 mg/kg): shows more Immature follicles (IMF), numbers of primary follicles (PF), secondary follicles (SF), medulla (M), (H&E) (40X).
Figure 2. Transverse section passes through the ovary of quails treated with alcoholic extracts of ginger concentration (300 mg / kg): shows the Immature follicles (IMF), numbers of primary follicles (PF), Blood vessels (BV), (H&E) (40X).

Figure 3. Transverse section passes through the ovary of quails treated with alcoholic extracts of ginger concentration (300 mg / kg): shows the Mature Follicles (MF), Blood vessels (BV), Theca Interna (TI), Theca Externa (TE), Oocyte (O), Zona Pellucida (ZP), (H&E) (40X).

The histological sections showed an increase in the growth and differentiation of ovarian follicles and the presence of several distinct follicles early in growth balanced with the control treatment and this is due to the fact that the alcoholic extract of ginger contains physiologically active substances, these substances are similar to steroid hormones by their association with hormone receptors and estrogen receptors and with proteins that transport those hormones, and that substances also have an effect on...
the metabolism of estrogen hormones and support its action which has the main role in accelerating
the growth and differentiation of the follicles in early stages because ginger contains volatile oils [12].
and the proliferation of tissue the ovarian stroma has a greater degree of control, and increased ovarian
cellularity and the presence and congestion of the blood vessels in the ovarian wall observed, this
proportion fed by alcoholic extract led to early differentiation in the primary and secondary follicles,
during folliculogenesis, also [13] stated that the ginger indicate positive effects on folliculogenesis.
Ginger play an important role in goodness fertilization as it contain high level of vitamin C and A,
minerals and some amino acids which are related with the activation of the endocrine gland and
growth increasing [14], this foundation probably explain the activity of the ovary and increasing the
number of primary and secondary follicles in quail birds treated with ginger alcoholic extract in this
study. The ginger rhizomes essential oil enhances bird reproductive performances, proteins and
reproductive hormone levels and hatchability traits in treated female quails [12,15].

4. References

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