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HISTOPATHOLOGICAL CHANGES IN MALE RABBITS THYROID GLAND FOLLOWING DRENCHING OF NICKEL CHLORIDE AND THE AMELIORATING EFFECT OF ETHANOLIC *SILYBUM MARIANUM* SEEDS EXTRACT

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ABSTRACT

Nickel chloride known as one of the heavy metals that induce damage in different body organs also silymarin act as anti oxidants and have ameliorative effects against many diseases and drags. The histological effect of nickel chloride and *Silybum marianum* seeds ethanolic extract on thyroid gland of fifteen male rabbits *Lepus cuniculus*) were studied for 35 days. Three groups of rabbits (n = 5 each) , first group rabbits served as control and given 1 ml normal saline , second group treated orally with dosages of 1mg/100g B.W nickel chloride, the third group treated nickel chloride1mg/100g B.W plus 0.1mg silymarin extract . the results revealed a severe damage of thyroid gland structures while *Silybum marianum* extract ameliorated the severity of damage.

KEYWORDS: Thyroid, Nickel, Silymarin

INTRODUCTION

Thyroid gland secretes hormones T3 and T4 which stimulated by TSH that secreted from pituitary gland to control the body's metabolic rateand using iodine to create thyroid hormone, this gland affected by some heavy metals [1, 2]. Nickel is the heavy metal that originates from different natural and artificial sources as air, water, soil and living organisms (ATSDR 2005)**.**and it is most rapidly and completely absorbed in animals and human. Study showed that nickel significantly decreases iodine uptake by the thyroid **(**Bogdan, *et al.* 2011). Heavy metals affect thyroid function in different ways , some of them via affecting thyroid hormone receptors as in arsenic Ciarrocca, *et al.* 2012and Jennifer *et al.* 2007 **.** Hammouda, *et al.* (2008) stated that thyroid dysfunction induced by cadmium **.** Liang, *et al.* (2003) found that lead exposure can lead to depressed thyroid hormone levels. study concerning the histological effects on structure of thyroid tissue were few , in rats, injection of nickel sulfate ($NiSO_4$) caused epithelial proliferation in the thyroid glands (Al-Mogairen, (2009)). Potassium dichromate induced structural changes in the thyroid follicular cells that were partially improved by vitamin C supplementation(Reda and Sadika,2012)

Silymarin extracted from *Silybum marianum* know as antioxidant, Sonnenbichler *et al.* (1999) pointed cytoprotective effects of silymarin against both the disease and/ or drugs-induced renal damage more ever silymarin minimized the incidence and severity of histopathological changes in liver Maryam *et al. (*2010) . (Sallan *et al.*2006 insure the ameliorative effects of silymarin on liver damage induced by lead toxicity in rats and in rabbits against alcohol toxicity Shallan *et al.(2007)*

MATERIALS AND METHODS

Fifteen male rabbits(*Lepus cuniculus*) of 8 to 10 month age weight 1.250-1.500 kg, randomly divided into three groups ten for each group treated for 35 day. Control group : 5 male rabbits was served as control group and received orally 1 ml normal saline(NaCl 0.9%) and second group orally received 1mg /100gram B.W $NiCl_2$ orally. Second group : received 1mg /100gram B.W $NiCl_2$ fallowed by 0.1mg/100gram B.W ethanolic extract of silymarein from *Silybum marianum* seeds (Iraq-Mosel) (Abid -Ali *et al.* 2014).Thyroid gland isolated surgically for histological examination served in containers filled with 10% formalin. Histopatological technique for microscopic examination leslie and James (2007**)**

RESULTS AND DISCUSSIONS

Histological changes were found in the cross sections of thyroid gland after 35 day of receiving $NiCl_2$, Figure 1 and 2 showed hyperplasia of acinar cells and vaculation of epithelial cells as well as excessive amount of fluid and more acini were without secretion in addition there were mild inflammatory cells figure 3. Hyperplasia of follicular cells and nuclei appeared oval,were seen following acute exposure to hexavalent chromium. Mahmood *et al.* (2010).

C-cell hyperplasia was detected as target cells of thyroid gland for nickel Cheng *et al.* 1997and Sonne *et al.* 2009) . Subcutaneous administration of nickel chloride on rats caused mild proliferation of the thyroid follicles, the follicles became smaller in size, the amount of colloid were diminished and lined by plump cuboidal epithelium (Sultan 2009). The proliferation of the epithelial cells of thyroid gland, the nuclei were transformed suggest that nickel chloride may injure thyroid gland of the rabbits(figure 4).

In the cross section figure 5 ,thyroid gland tissue structures of the male rabbits that received $NiCl_2$ plus silymarin extract showed more active acini and less edema and thyroid follicular cells were partially improved silymarin supplementation.

Maryam *et al.*,(2010)showed the important of silymarin againest Isoniazid Induced Hepatotoxicity in Rabbits. Rajiha, (2012) found therapeutic effect of *Silybum marianum* on the lead acetate induced toxicity on testes. These finding may provide a basis for the development of novel therapeutic strategies of silymarin for protection against the damages.

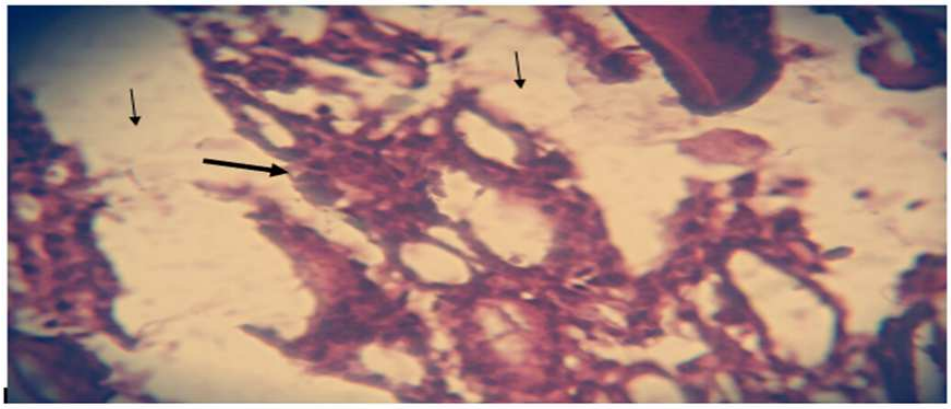

Figure 1: Cross Section in Male Thyroid Gland Treated with Nickel Chloride Showed Hyperplasia of Cells (Thick Raw) and Odematous Fluid (Thin Raw) (H&E) Stain X 10

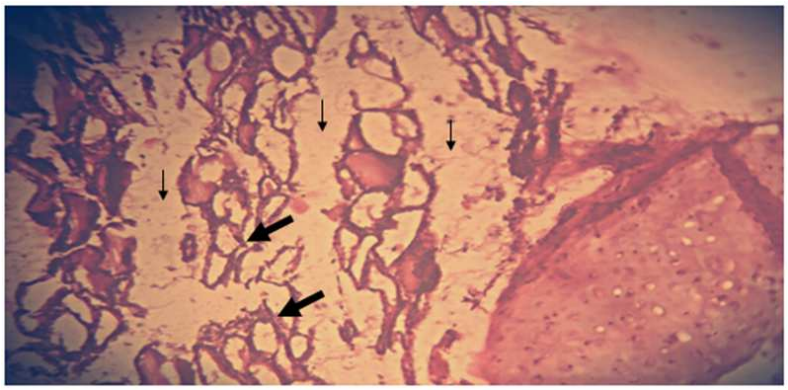

Figure 2: Cross Section in Male Thyroid Gland Treated with Nickel Chloride Showed Excessive Amount of Fluid(Thin Rew) and More Acini are Without Secretion (Thick Rew) (H&E) Stain X 10

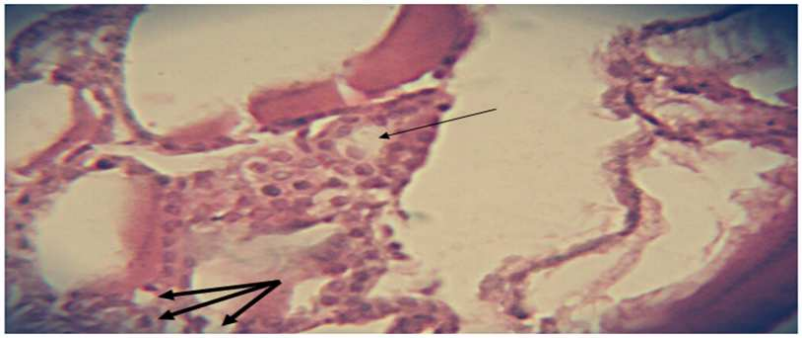

Figure 3: Cross Section in Male Thyroid Gland Treated with Nickel Chloride Showed Hyperplasia of Acinar Cells (Thin Rew) and Vacuolateg of Epsithelial cells (Thin rew) (H&E) Stain X40

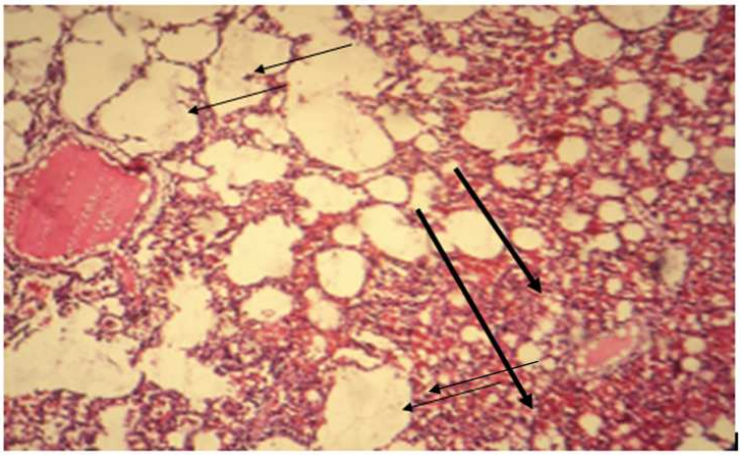

Figure 4: Cross Section in Male Thyroid Gland Treated with Nickel Chloride Showed the Amount of Colloid Diminished in Most Follicles (Thin Raw) and Excessive Cells Proliferation(Thick Raw) and Odematous Fluid (Thin Raw) (H&E) Stain X40

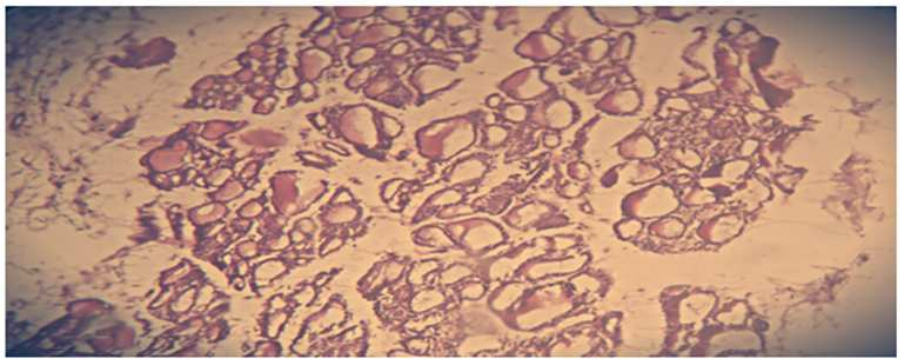

Figure 5: Cross Section in Male Thyroid Gland Tissue Treated with Nickel Chloride Plus *Stlybum marianum* Seeds Extract Showed More Normal Acinar Cells and Secretion, Less Odematous and No Inflammatory Cells (H&E) Stain X10

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