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ESTIMATION THE LEVEL OF HORMONES IN DIABETES MELLITUS

The article aims to study the effects of hormonal and their effects on diabetes, as was evaluated, where revealed a change in the DHEA and HbA1C, GH and Owing to the impaired glucose resistance seen in acromegalics, the GH has an impact on glycaemic regulation is most apparent, but is also shown with physiological GH variations such as during pubertal growth spurt. In diabetics the GH / IGF-I axis derangements caused by impaired metabolic regulation.

Keywords: hormone, GH, derangements, diabetics.

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CYTOTOXICITY ACTIVITIES OF OAK GALLS ON TURKEY OAK

Рассмотрена цитотоксичность галлов на дубе.

Ключевые слова: цитотоксичность, галл, дуб¹⁵.

There is a tremendous increase in the use of natural products for pharmacology and industrial areas over the past few decades. The cynipid galls (Cynipidae) are known oak products are conventionally believed to have enormous therapeutic value. Pharmacologically, the galls are claimed to have various biological activities such as astringent effect, antitremorine, local anesthetic, antipyretic, anti-inflammatory, antibacterial, antiviral, and many more. Oak galls contain rich biological compounds (phenolics, flavonoids etc.), and 50–70 % of them are tannins [1, 2].

In current study, gall samples of three cynipid species were collected on Turkey oak (*Quercus cerris* L.) in eastern Black Sea region, Turkey. These gall wasp species are formed on same host oak (*Q. cerris*): *Aphelonyx cerricola* (Giraud, 1859), *Aphelonyx persica* Melika, Stone, Sadeghi & Pujade-Villar, 2004, *Synophrus politus* Hartig, 1843. We proposed to prepared gall extracts of three different cynipid species by four solvents (acetone, ethanol, methanol and water), and determined cytotoxic activities of the gall samples by Brine-Shrimp Lethality Test [3]. Brine shrimp method aims to find the lethal effects and LC₅₀ values of gall extracts on *Artemia salina* L. larvae in prepared medium.

According to our results, the lowest LC₅₀ values were obtained in methanol extract of each gall species: 8,31 ± 0,78 µg/mL for methanol extract of *A. cerricola* gall, 5,94 ± 0,32 µg/mL for methanol extract of *A. persica* gall, and 0,08 ± 0,03 µg/mL for methanol extract of *S. politus* gall. So, the methanol extracts of each gall samples showed stronger cytotoxic activity. Compared to the three gall samples, the most effective is sexual gall extracts of *S. politus* which are ranged from 0,08 ± 0,03 µg/mL to 4,41 ± 0,58 µg/mL. In addition, some gall extract groups were found to be statistically different from each other (p < 0,05).

¹⁵ Аннотация и ключевые слова приведены на русском языке для расширения читательской аудитории.

Table 1 – Cytotoxicity activities (mean ± std) of the gall extracts

Cynipid gall	Solvent	LC ₅₀ (µg/mL)
Asexual galls of <i>Aphelonyx cerricola</i>	Acetone	28,56±2,50 ^d
	Ethanol	12,23±1,94 ^{bc}
	Methanol	8,31±0,78 ^{abc}
	Water	54,83±9,06 ^e
Asexual galls of <i>Aphelonyx persica</i>	Acetone	51,91±3,20 ^e
	Ethanol	11,10±0,31 ^{bc}
	Methanol	5,94±0,32 ^{abc}
	Water	14,36±3,15 ^c
Sexual galls of <i>Synophrus politus</i>	Acetone	0,64±0,15 ^a
	Ethanol	4,41±0,58 ^{ab}
	Methanol	0,08±0,03 ^a
	Water	3,77±0,48 ^{ab}

LC₅₀ = the lethal concentration required to kill 50 % of the population; Data were given as the mean of the measurements±std. The letters after the mean values in each column refers to statistically different than the others (p < 0,05).

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In toxicity assessment of extracts by brine shrimp bioassay, if LC₅₀ value is lower than 1,000 µg/mL, the extract is considered toxic [3]. In our study, all of the gall extracts showed strong brine shrimp larvicidal activity. The brine shrimp bioassay results clearly demonstrate the toxic effects of the gall extracts, which could be due to any of the secondary metabolites of the galls.

Keywords: Cynipidae, cytotoxicity, *Aphelonyx*, *Synophrus*, gall, oak.

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PHENOLIC, FLAVONOID AND TANNIN AMOUNTS OF CYNIPS BASKALEI (CYNIPIDAE) GALL EXTRACTS

Цель исследования – измерить общее количество фенолов, флавоноидов и танинов в одном из галлов цинипидов, известных только в Турции. В ходе дальнейших исследований будут определены биоактивные компоненты других галлов цинипидов.

Ключевые слова: цинипиды, фенол, флавоноид, танин, галл, дуб¹⁶.

Oak gall wasps (Cynipidae, Cynipini) which known gall inducer on mostly oaks (*Quercus* spp.), is the largest group of cynipids with about 1000 species [1]. The genus *Cynips* belongs to the tribe of the Cynipini,

¹⁶ Аннотация и ключевые слова приведены на русском языке для расширения читательской аудитории.

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