



Antioxidant and Anti-denaturation Activities of *Asparagus horridus* Grows in North Cyprus

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Asparagus horridus

- It is an edible plant and known as “**Ayrelli**” in North Cyprus.

antioxidant activities

anti-inflammatory

anti-cancer (breast cancer, leukemia, lung cancer, and liver cancer),

The scientific literature has not yet submitted a report about the antioxidant and anti-cancer activities of ***A. horridus*** plant from North Cyprus until now.

Besides that, there has been no pharmacological study performed specifically on ***A. horridus*** in literature.



Figure 1. *Asparagus horridus* plant.

Material and Methods

1. Plant Collection and Soxhlet extraction



a) *Asparagus horridus*



b) Grinded dry plant



c) Soxhlet extraction



d) Rotary evaporator



e) Final product

Figure 2. Plant collection and Soxhlet extraction process.

Material and Methods

2. **1,1-Diphenyl-2-picrylhydrazyl (DPPH)**

3. **Total Flavonoid Content (TFC)**

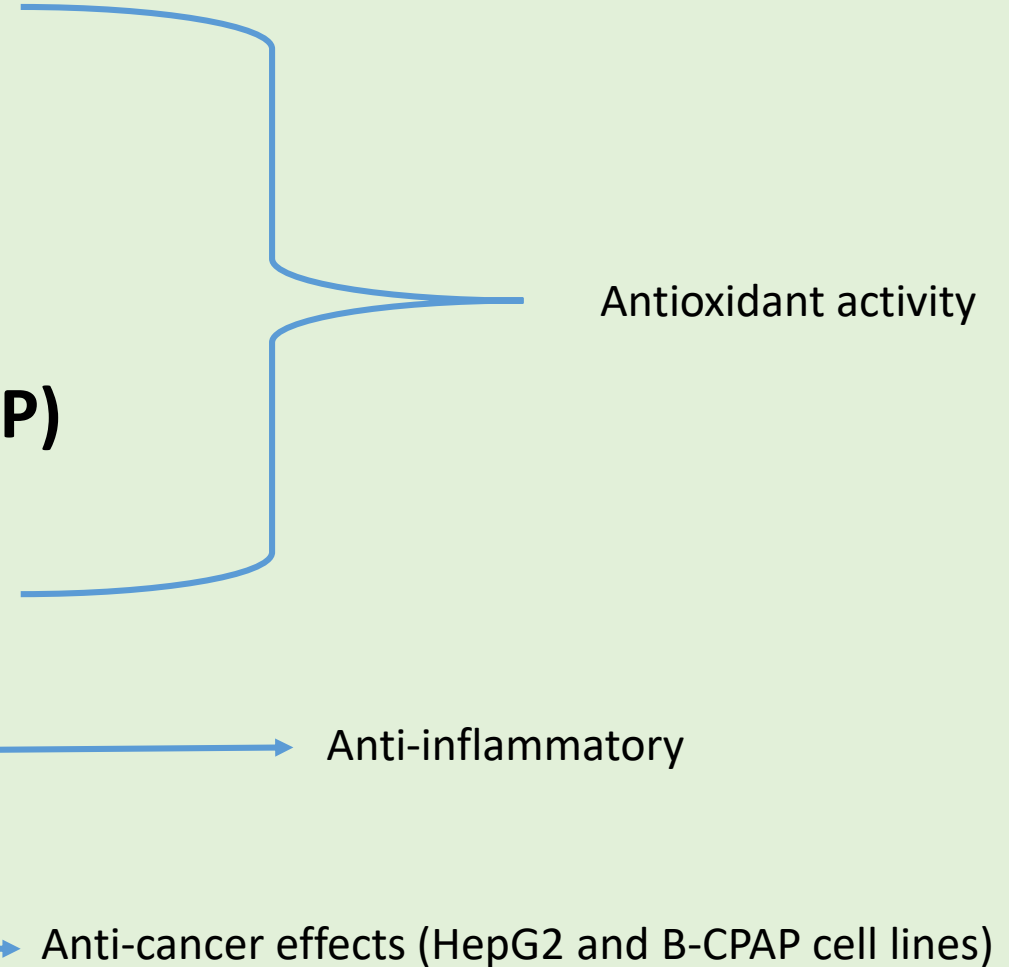
4. **Ferric Reducing Antioxidant Power (FRAP)**

5. **Total Phenolic Content (TPC)**

6. **Protein-denaturation assay**

7. **MTT assay**

8. **Statistical Analysis**



Results

Total flavonoid content (TFC)

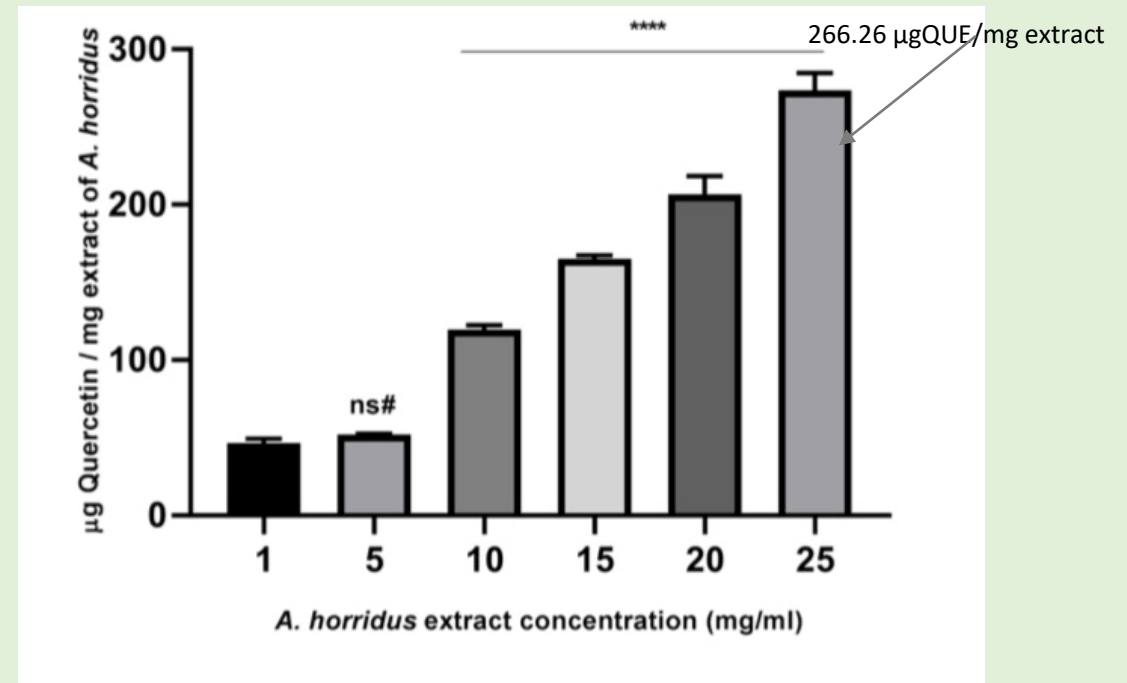


Figure 4. Total flavonoid content (TFC) of *A. horridus* extract.

Ferric ion reducing antioxidant potential (FRAP) assay

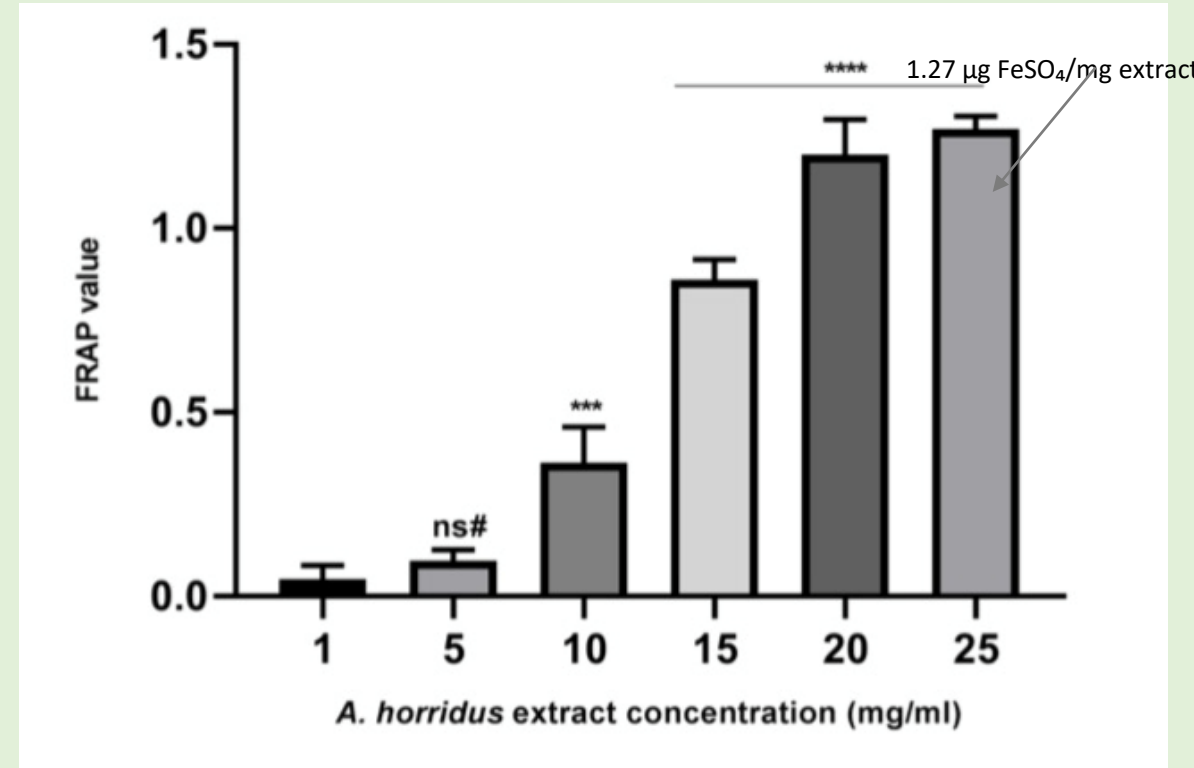


Figure 6. Reducing power capabilities of *A. horridus* extract at concentrations between 1-25 mg/ml.

Protein-Denaturation Assay

Concentration	% inhibition of denaturation of BSA
1mg/ml	0,28±0.08
5mg/ml	2,72±0.34
10mg/ml	9,47±0.43
15mg/ml	16.33±0.61
20mg/ml	22.67±0.61
25mg/ml	29.42±0.34

Table 1. Effects at increased concentrations of *A.horridus* and diclofenac sodium against protein denaturation.

Cell culture and Cell viability

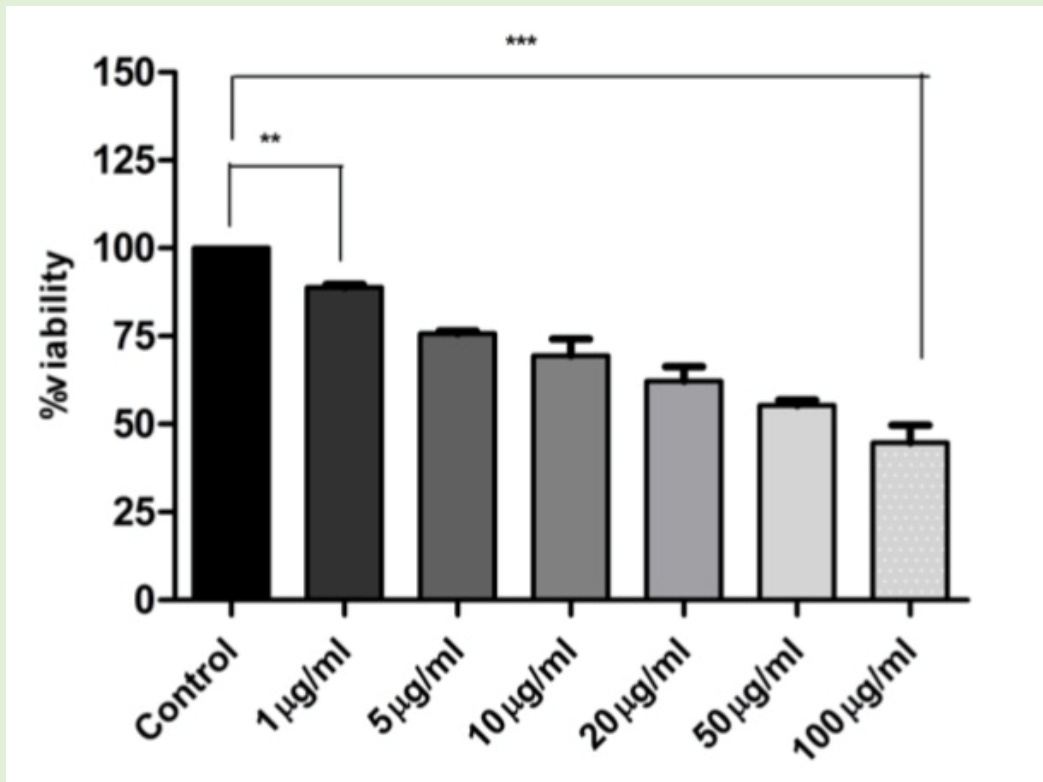


Figure 7. % cell viability of Human Hepatocellular Carcinoma cell line (HepG2).

$$IC_{50} = 63.24 \mu\text{g/mL}$$

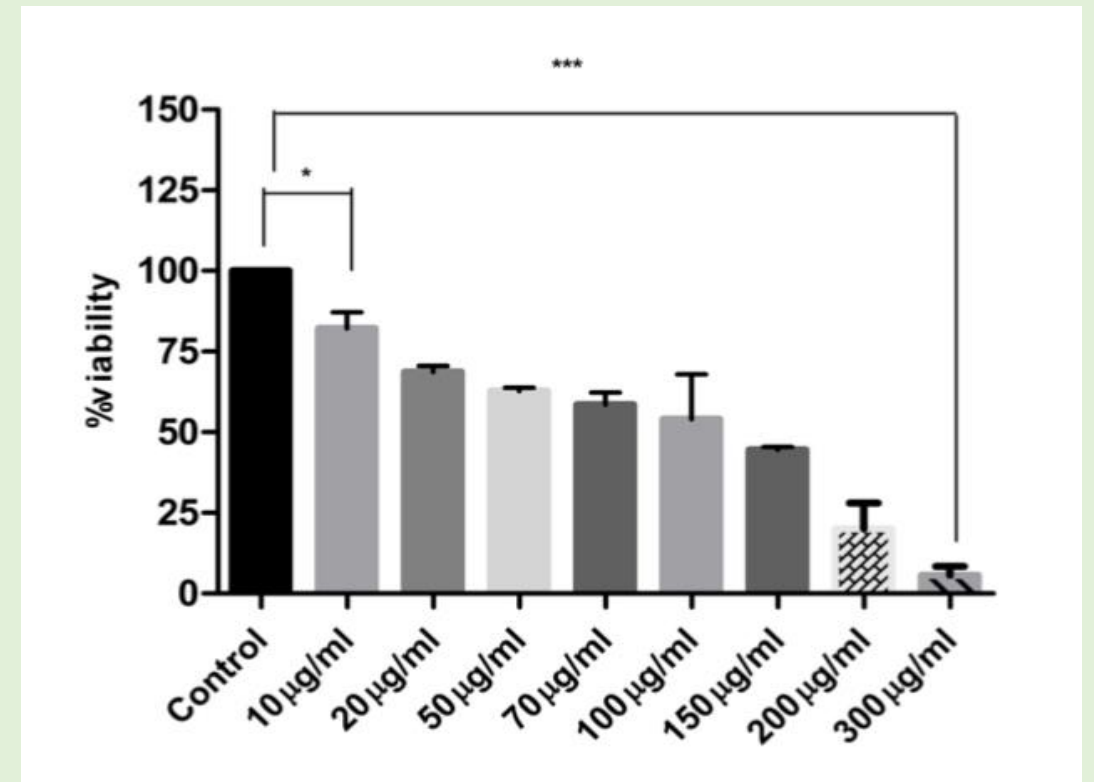


Figure 8. % cell viability of papillary thyroid carcinoma cell line (B-CPAP).

$$IC_{50} = 101.24 \mu\text{g/mL}$$

Discussion

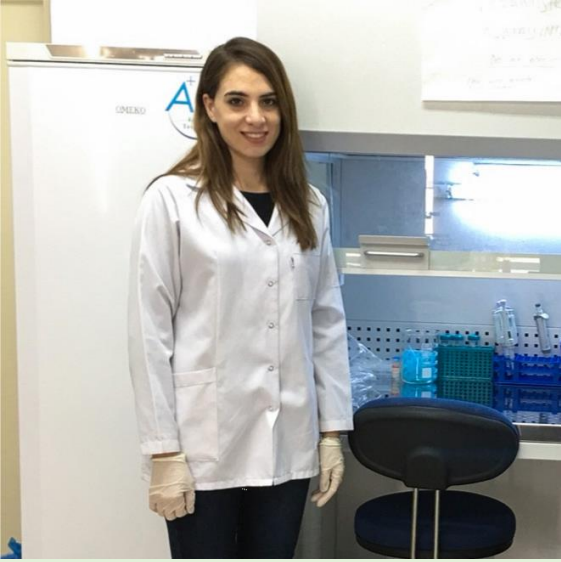
- The aim of the present study was to evaluate the ***in vitro* antioxidant, anti-inflammatory and anti-cancer activities** of methanol extract of *A. horridus*.
- Phenolic compounds, such as flavonoids, coumarins, phenolic acids are well-known as antioxidant and many other important agents.
- Our results showed that *A. horridus* have **potential antioxidant capability**.

- According to our results, inhibition of protein denaturation was found as **29% at 25 mg/ml** extract concentration. This study is the first report which focuses on **anti-inflammatory response** of *A. horridus* against denaturation of proteins.
- The IC₅₀ values of *A. horridus* on HepG2 and B-CPAP cells were **63.24 µg/mL** and **101.24 µg/mL** after 24 h, respectively.
- *A. horridus* could be a **new potential anticancer agent** for management of cancer treatment. These findings showed that methanol extracts of *A. horridus* have **potential as a medicinal drug** for both liver and thyroid cancer treatments.

References

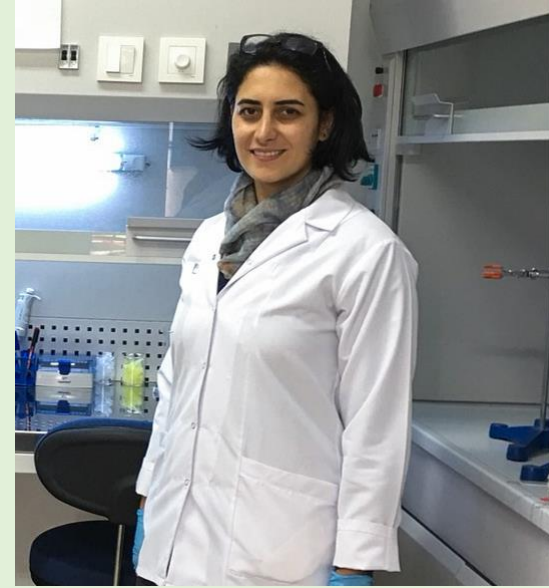
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Thank you..