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THE BRINE SHRIMP *(ARTEMIA SALINA)* LETHALITY OF *Brassica oleracea* var. *capitata*

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SUMMARY

This work covers up the bio-activities of the five fractions obtained from the ethanolic extract of *Brassica oleracea* var. *capitata* (Cruciferae).

ÖZET

Bu çalışmada *Brassica oleracea* var. *capitata* (Cruciferae) bitkisinin etanol ekstresinden elde edilen beş ayrı fraksiyonun Brine shrimp yöntemiyle biyoaktiviteleri tayin edilmiştir.

INTRODUCTION

Brassica oleracea var. *capitata* (Cruciferae), according to some investigators, is proved to be a remedy for many illnesses (1) because the plant contains various substances (2-6) like proteins, vitamins, resins, mineral salts, lipids, calcium şalts, MgO, Fe and S.

Key Words: *Brassica oleracea* var. *capitata*, Brine shrimp *(Artemia salina)*

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A previous work (7) made by us in 1982 consists of the effects of substances obtained from this plant, to the embrionic and tumorous cells. Another work, again made by us in 1988 (8), proves the mitotic delaying effect of a substance, Fraction No. 5, obtained from this plant, whose structure was determined by us in 1992 (9). This fraction is proved to be a mixture of some alkanes, alkennes, myristic and palmitic acids, some phenones, some phthalates, some thiocyanates and some cyanides.

The second fraction, isolated by PC, was proved by us to be acetylcholine (10). The first and third and fourth fractions need to be further investigated for identification. Plants are collected from fields around İstanbul in 1993.

MATERIAL AND METHOD

The ethanol extract obtained from the plant is applied to PC. Five fractions are obtained. These are eluted with ethanol and the ethanol extracts are made up to dryness and taken with chloroform and the chloroform extracts are applied to the Brine shrimp *(Artemia salina)* (11).

The Brine shrimp Method:

1. 3.8 g sea salt is dissolved in 100 ml of water.
2. Sea water is put into the tank and shrimp eggs are added to the tank.
3. The shrimp are kept for two days to hatch and mature.
4. Vials for testing are prepared in 1000, 100 and 10 µg ml^{-1} concentrations and 3 vials are prepared for each concentration. 20 mg of sample is weighed and dissolved in 2 ml of solvent. From this solution 500, 50 or 5 µl are transferred to vials corresponding to 1000, 100 or 10 µg ml^{-1} respectively. Solvent evaporated under nitrogen.
5. 2 days later when the shrimp larvae are ready, 5 ml of sea water is added to each vial and 10 shrimp per vial is counted.
6. 24 h later the number of survivors is counted and recorded.
7. Data is analysed with a computer to determine LC_{50} values and 95% confidence intervals.

RESULTS AND DISCUSSION

The results in Table 1 show that Fractions No. three, one and four, respectively, are the most active, according to this method. These fractions are even more active than Fr. No. 2, which is proved by us to be acetylcholine and Fr. No. 5, which is proved by us to have a cytolitic effect. Therefore, those need to be identified and more investigated.

Table 1: Assay of partition fractions from ethanolic extract of *B. oleracea* var. *capitata* leaves.

Fraction No.		Brine Shrimp LC_{50} (ppm)
Fr. No. 1	(H_2O Soluble)	0.74
Fr. No. 2	(H_2O Soluble)	7.85
Fr. No. 3	(H_2O Soluble)	0.34
Fr. No. 4	(H_2O Soluble)	0.97
Fr. No. 5	(H_2O Soluble)	137.18

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