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Study on sunscreen effects of *Artemia urmiana* and *Artemia salina* total extracts and their fractions

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OBJECTIVES: The importance of using sunscreens is not unknown nowadays, meanwhile the adverse reactions of some synthetic chemical or physical sunscreens and successful researches done on using natural ingredients from plants and animals, extended the way of studying on natural compounds of which *Artemia* is one new example. The aim of this investigation was to study the sunscreen effects of total extracts of *Artemias* and their fractions. **METHODS:** For achieving this aim, two main steps were taken including preparation of different extracts and fractionating them and then studying their UV spectra. The dried *Artemia* powder was extracted with hexane for 24h, and then the remained powder was extracted with dichloromethane. Extraction with dichloromethane caused remarkable decoloration of *Artemia* powder. Final extraction was done by several solvent systems including methanol, ethanol and hydro alcoholic solution (70: 30 water- ethanol). The liquid extracts were dried by rotary evaporator at ambient temperature and reduced pressure and standard solutions were prepared from dried extracts. For preparing of standard solutions, a distinct weight of dry extracts was dissolved in equal volume of solvent. The UV spectra of the solutions were recorded in the range 190-400 nm. Then fractionation of these extracts was done for more accurate analysis of active sunscreen ingredients included in them. For this purpose, the total extracts were chromatographed over a column of Sephadex LH-20 using MeOH. **RESULTS:** The collected fractions were analyzed by UV spectrophotometer individually and the same samples were combined with each other for determining the main fractions. After evaluation of fractions, the best sunscreen fraction was selected based on UV absorption characteristics. The second fraction of hydro alcoholic (70:30) and the third fraction of methanol extract had the best results in UV-B region. **CONCLUSION:** The Results of the present study showed that the hydroalcoholic and methanol extract of *Artemia urmiana* as well as *Artemia salina* can be used as sunscreen in topical preparations but it would be suggested to use hydro ethanolic fraction in formulating sunscreen products because of disadvantages of methanol application in topical formulation.

Key words: *Artemia urmiana*, *Artemia salina*, Sunscreen, UV spectrum.

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LH-20
UV

%

UV

UV-B

.UV

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UV



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() LH_20

UV

PABA

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(- Roche) Parsol HS ()
(Medium, Ashless)

(.)

() FRITSCH

Cenco) (WB2000, Heidolph)

DNA

Gallenkamp)

Shimadzu mini 1240) UV

Shimadzu) /

(MEMMERT)

(.)

(Ball mil)

rpm

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()

()

%

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(.)

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GP4G

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() LH-20

1- Artemin
2- Ferritin
3- Oxolinic acid
4- Flumequine

/

PABA



UV :

UV

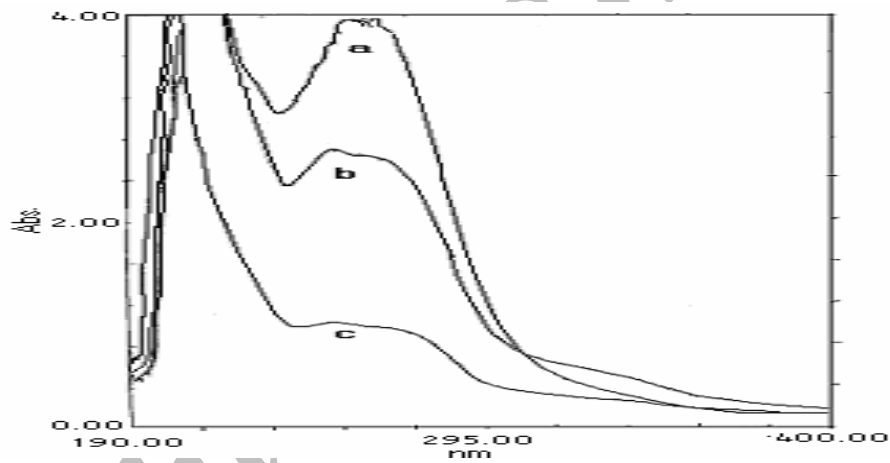
UV

%

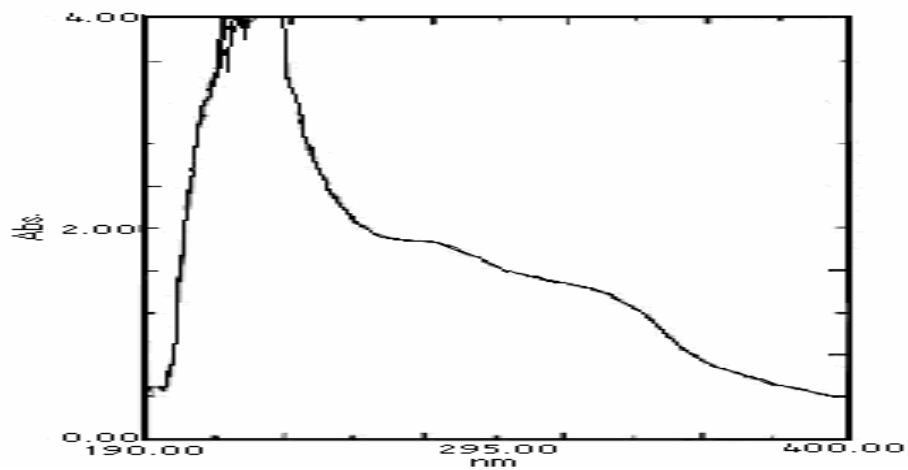
UV

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(-)



(/ mg/ml) (c) % (b) (a) UV :



/ mg/ml UV :

UV

PABA

UVB

()

UVB

()

PABA

UV

%

LH-20

UVA

()

UVB

P₂₆

Heat-Shock Protein HSP

RNA DNA

()

()

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P₂₆

[

ROS

HSP P₂₆

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HSP

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UV

() Apoartemin Artemin-RNA

UV

HSP

UV

PABA

PABA

PABA

UVA

nm

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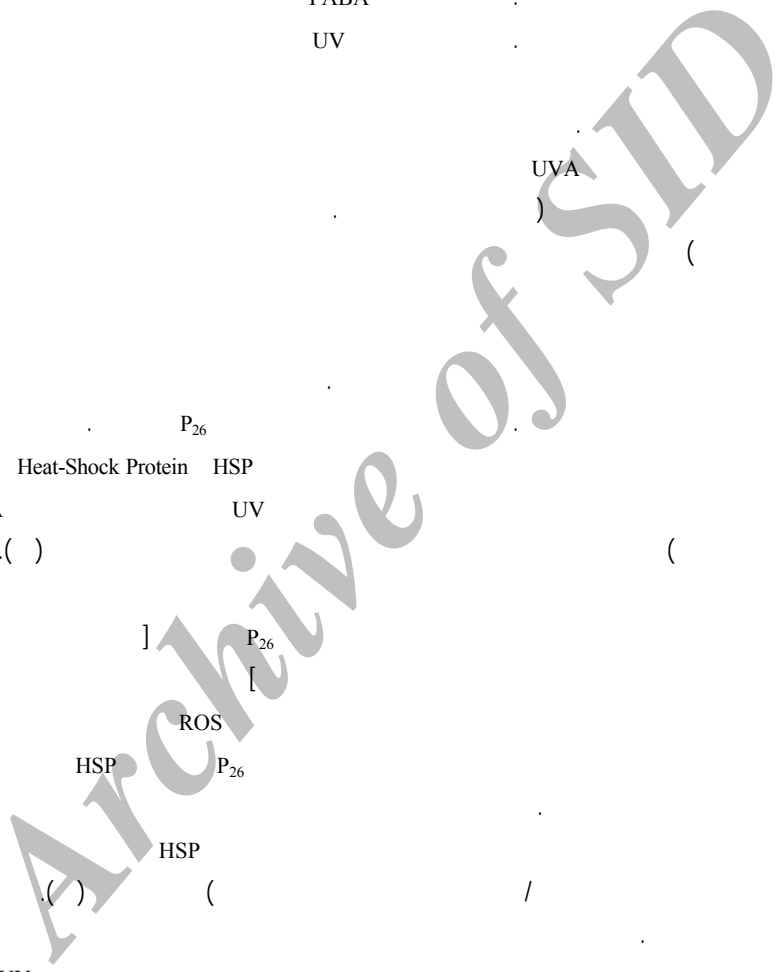
UV

ATP

PABA

(nm)

PABA



UVB DNA HSP70 (Heat Shock UV
UV HSP70
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()
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DNA) SPF
(...
(UV
SPF

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