

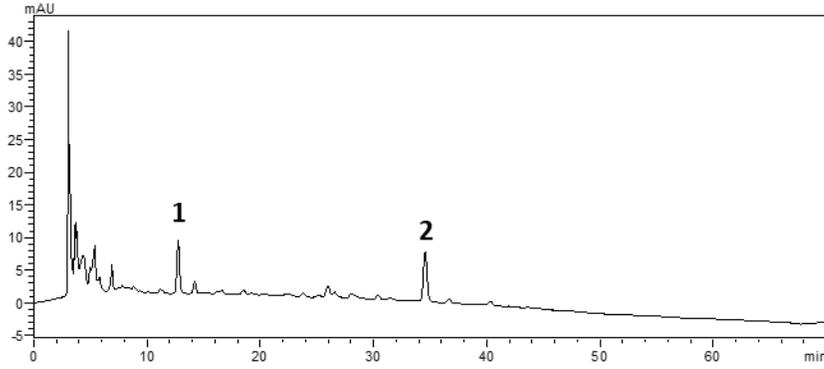
## Supplementary Materials

# Bioactive Compounds of Shrimp Shell Waste from *Palaemon serratus* and *Palaemon varians* from Portuguese Coast

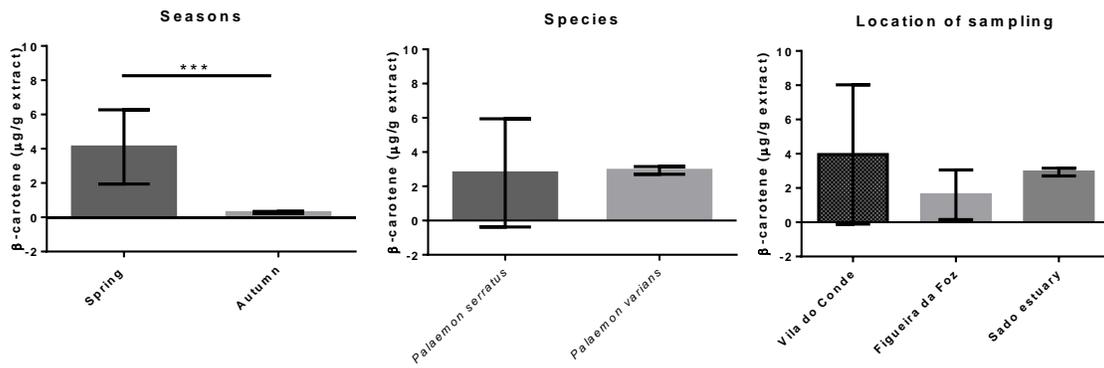
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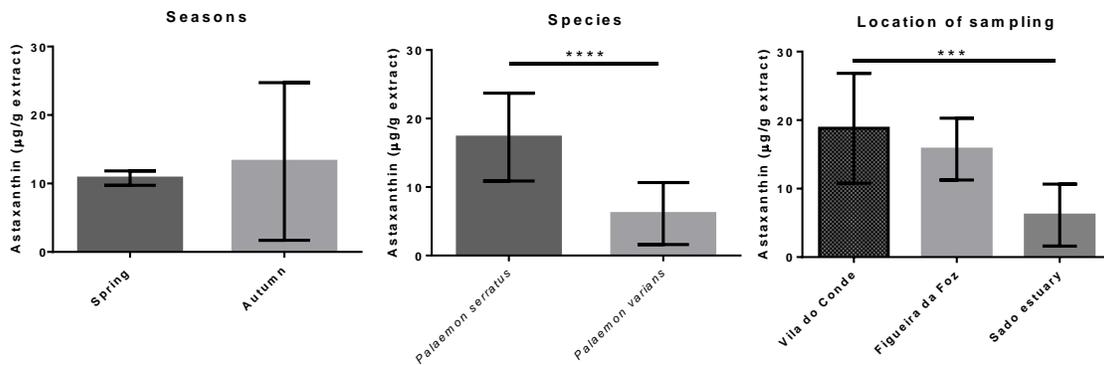
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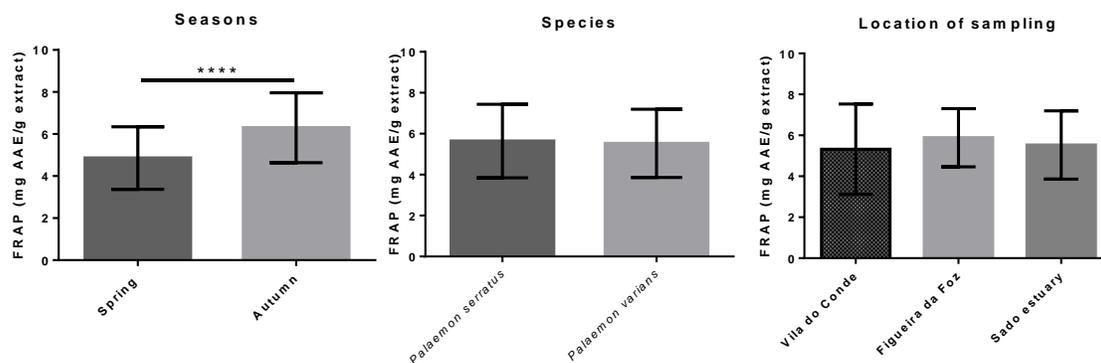
**Figure S1.** Chromatogram of the sample Vila do Conde spring containing astaxanthin (1) and  $\beta$ -carotene (2) obtained in the PDA detector.



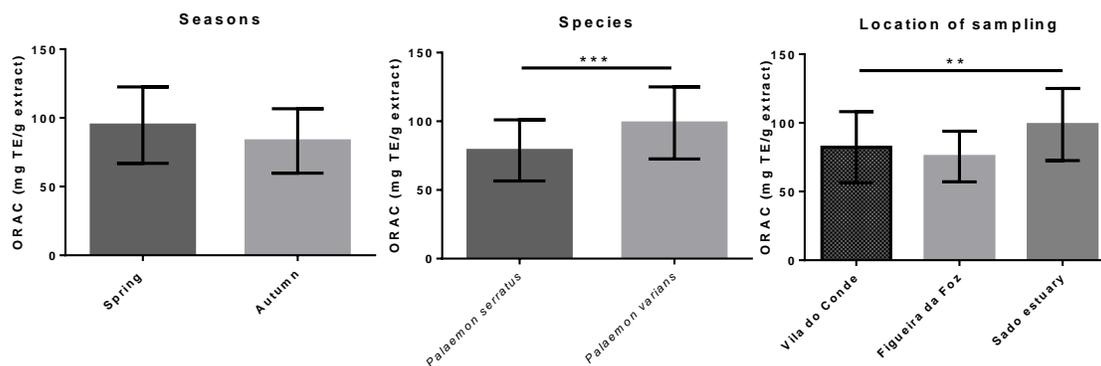
**Figure S2.** Differences of  $\beta$ -carotene content between seasons, species and locations. Columns correspond to mean of the concentration  $\pm$  SD. Significantly different,  $***p < 0.001$ .



**Figure S3.** Differences of astaxanthin content between seasons, species and locations. Columns correspond to mean of the concentration  $\pm$  SD. Significantly different,  $***p < 0.0001$ ,  $***p < 0.001$ .



**Figure S4.** Differences of FRAP content between seasons, species and locations. Columns correspond to mean of the concentration  $\pm$  SD. Significantly different, \*\*\*\* $p < 0.0001$ .



**Figure S5.** Differences of ORAC content between seasons, species and locations. Columns correspond to mean of the concentration  $\pm$  SD. Significantly different, \*\*\* $p < 0.001$ , \*\* $p < 0.01$ .

**Table S1.** Average diameter of inhibition zone (mm) of shrimp shell; (A)-aquaculture; (W)-wild.

Location of sampling and season	Species	<i>E. coli</i>	<i>S. aureus</i>	<i>B. cereus</i>	<i>P. aeruginosa</i>	<i>S. enteritidis</i>
Figueira da Foz, Spring	<i>Palaemon serratus</i>	-	-	-	-	-
Figueira da Foz, Autumn		-	-	-	-	-
Vila do Conde, Spring		-	-	-	-	-
Vila do Conde, Autumn		-	-	-	-	-
Sado estuary (A), Spring	<i>Palaemon varians</i>	-	-	21 $\pm$ 4	16 $\pm$ 2	20 $\pm$ 3
Sado estuary (A), Autumn		-	-	23.3 $\pm$ 0.3	20 $\pm$ 1	18 $\pm$ 13
Sado estuary (W), Spring		-	-	-	19.4 $\pm$ 0.4	-
Sado estuary (W), Autumn		-	-	-	14 $\pm$ 4	-

**Table S2.** Positive and negative strong correlations between the elements analyzed.

<b>Positive correlations</b>	<b>r</b>
TPC with FRAP	0.78
TC with astaxanthin	0.92

<b>Negative correlations</b>	
DPPH with astaxanthin	0.71
FRAP with $\beta$ -carotene	0.91