Effects of sudden salinity changes on the oxygen consumption and osmoregulatory parameters in th Senegalese sole (*Solea senegalensis* Kaup, 1858)

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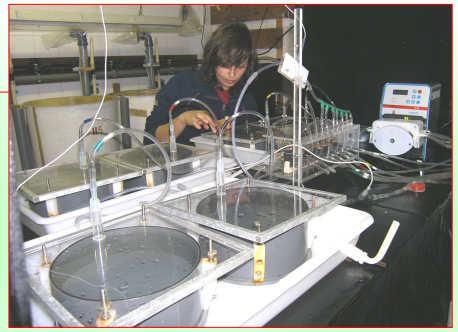
EXPERIMENTAL CONDITIONS

Flow-through respirometers
40-50 g fish body weight
T=20 ºC; S=37.5 ppt
Sudden salinity change (t=4 h): 5 and 55 ppt



DATA COLLECTION

Oxygen consumption (every 15 min)

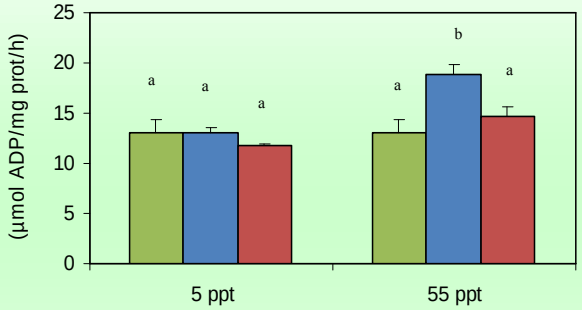
Fish sampling (t=4.5 and

Gill:
K^+,Na^+- ATPase activity

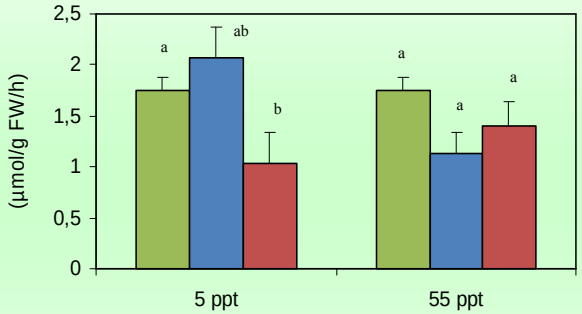
Blood/plasma
Cortisol concentr

RESULTS AND DISCUSSION

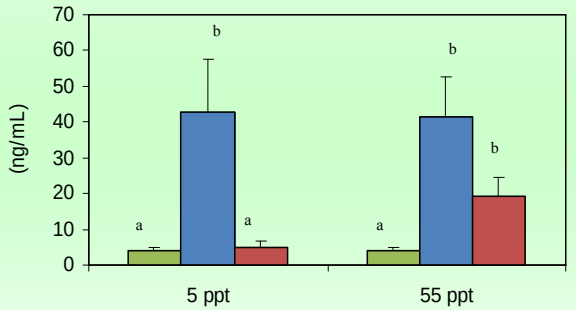
Gill Na^+,K^+-ATPase activity



Oxygen consumption



Cortisol



LEGEN
Contro
t=4.5
t=7 h

At t=4.5 h, oxygen consumption showed an inverse relationship with salinity, while gill Na^+,K^+- ATPase activity increased. Plasma cortisol levels presented a "U-shaped" relationship with salinity (higher values in extreme salinities). At 7 h, oxyge consumption was higher in the control group, while cortisol and gill Na^+,K^+- ATPase activity varied in parallel to salinity. Our results suggest that sudden salini changes evoked an acute stress situation (cortisol increased up to 15x over the basal level) which was attenuate after 7 h. Fish quickly adapted its respiration rate the new environmental conditions and this rate returned progressively to its normal values after the shock. Regarding enzyme activity, fish increased (55 ppt) decreased (5 ppt) the ATPase activity depending on the salinity, as described in other studies.

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