

## Comparative study of shell shape and muscle scar pigmentation in the closely related cupped oysters



The taxonomic status of the cupped oysters *Crassostrea angulata* and *C. gigas* has received considerable attention in the last decades. Based on larval shell morphology, experimental hybridization, allozymes and nuclear DNA studies several authors have considered these two taxa as being synonymous. However, mitochondrial data showed clear genetic differences between the two taxa. In addition, microsatellite-based studies and cytogenetic studies have also provided evidence that supports their differentiation. Considerable differences have also been observed at the phenotypic level in terms of growth rate and ecophysiological parameters. In the present study, *C. angulata* from Sado estuary (Portugal) and *C. gigas* from Seudre estuary (France) were collected and factorial crosses were performed. Juveniles of the different progenies were reared in Ria Formosa (Portugal) under common conditions to determine if they exhibited differences in shell shape and in pigmentation of the adductor muscle scar. Significant morphometric differences between *C. angulata* and *C. gigas* progenies were indicated by univariate and multivariate analyses.

Univariate analysis of size-adjusted shell measurements revealed significant differences between the two taxa for shell depth, muscle scar height, and length of ligamental area. Both reciprocal hybrids showed intermediate morphometric characters between parental lines. In addition, significant differences were also observed between *C. angulata* and *C. gigas* progenies in terms of pigmentation of adductor muscle scar. *C. angulata* and both reciprocal hybrid progenies showed highly pigmented adductor muscle scars whereas in *C. gigas* progeny the pigmentation was lighter. The differences in shell shape and muscle scar pigmentation observed in the present study support the distinction of the two taxa.

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