

Steroidogenesis, the process by which steroid hormones are synthesized, involves a vast number of enzymes and biochemical pathways that are susceptible to chemical modulation. Between these chemicals, the endocrine disruptor compounds (EDCs) are of special concern since they can alter hormone homeostasis by interfering with synthesis, transport and elimination of hormones. Given that steroidogenesis involves the progressive change of gonads, the interpretation of outcomes related with steroids balance has to be carefully assessed and the natural variation that occurs between different levels of gonadal development and gender has to be described. Thus, we aimed to characterize the mRNAs levels of genes encoding to the Steroidogenic Acute Regulatory (star) protein; the steroidogenic enzymes P450 11 β -hydroxylase (cyp11b) and P450 aromatase (cyp19a1); as also the phase II conjugation enzymes sulfotransferase (sult) and UDP-glucotransferase (ugt), together with the activity of p450 aromatase, at different gametogenic stages of the thicklip grey mullet *Chelon labrosus*. It was also of our interest to determine the relationship of all these outcomes in regards with the development of the intersex condition. Results demonstrated that the expression of selected genes and the activity of P450arom vary in regards of the reproductive stage and the gender highlighting the importance of characterize this kind of outcomes before assessing xenobiotics-modulated effects over steroidogenesis. Regarding intersex individuals it was demonstrated that for the majority of the genes assessed, transcriptional levels of intersex fish did not show significant differences from males' transcriptional levels, and that intersex from the Pasaia harbor show a low level of intersexuality that can only be distinguished by histological procedures.