

ECASA indicator

Name	EROD
DPSIR class	Pressure
ECASA sub-group	Genetic
ECASA code	EROD
Proposed by participant	4 – National institute of biology, Slovenia
Definition, computation,	Measurement of ethoxyresorufin-O-deethylase activity (EROD) in fish liver. This indicator is more related to the impact of sea water quality on the aquaculture Calculation of specific enzymatic activity
	$activity_{EROD} = \frac{IF_c \cdot c \cdot VF}{IF \cdot V_c \cdot t \cdot P} \quad (\text{UNEP, 1999})$
	<p>IF_c.....sample fluorescence</p> <p>c.....resorufin concentration</p> <p>VF.....final volume of reaction</p> <p>IF.....resorufin fluorescence</p> <p>V_c.....volume of liver supernatant</p> <p>t.....reaction time</p> <p>P.....protein content</p> <p>Tissue: liver</p>
Data required	
Summary, scientific meaning, implementation	Measurement of EROD activity in fish is a well established biomarker of exposure to planar halogenated and polycyclic aromatic hydrocarbons and structurally related compounds. EROD activity is highly sensitive indicator of contaminant exposure because induction of cytochrome P450 dependent monooxygenase is receptor mediated. There are some evidences on relationship between EROD induction and detrimental effects (such as carcinogenicity, embryotoxicity, morphological and histopathological changes, immunotoxicity) in fish exposed to EROD inducing contaminants.
Range of validity	
Species concerned (fishes/molluscs)	Fishes
Related type of aquaculture	-Open sea aquaculture -Cage aquaculture
Relevant environments for this indicator	Open sea Sheltered areas (bays, fjord, estuaries)
Geographic scale	
Direct relevance to objectives	
Clarity in design.	
Realistic collection or development costs	
High quality and reliability	
Appropriate spatial and temporal scale	
Obvious significance	

advantages
disadvantages
references

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State of validation
recommendations

This indicator is more related to the impact of sea water quality on the aquaculture