

ECASA indicator

Name	DNA damage (biomarker of exposure to genotoxic substances)
DPSIR class	Impact
ECASA sub-group	Genetic
ECASA code	DNADAM
Proposed by participant	4 - National institute of Biology, Slovenia
Definition, computation,	<p>Calculation of Strand Scission Factor (SSF) $\text{Log}_{10} = (\% \text{ DNA eluted in test sample}) / (\% \text{ DNA eluted in control sample})$</p> <p>Calculation of elution rate $K = -\ln y/V$ Y= the fraction of DNA retained on the filter after the elution of the volume V V= volume</p>
Data required	Materials: samples of Tissue: haemolymph
Summary, scientific meaning, implementation	<p>Measuring of DNA damage gave us information about genotoxic risk for marine organisms exposed to mixed environmental pollution as well as the information about the presence of unknown mixture of genotoxic contaminants in the marine environmental. One of the widely used method to determine the extent of genetic damage in mussels is alkaline elution method. DNA single strand breaks or weak points were identified by measuring the rate at which single stranded DNA passes through a membrane filter of known porosity under alkaline denaturing conditions. One of the advantage of method is that allows determination of genotoxic effects in living animals (e.g. withdrawn of haemolymph from <i>Mytillus galloprovincialis</i>).</p>
Range of validity	
Species concerned (fishes/molluscs)	All
Related type of aquaculture	<ul style="list-style-type: none"> -Cage aquaculture -Longlines -Intertidal, extensive aquaculture
Relevant environments for this indicator	Sheltered areas (bays, fjord, estuaries)
Geographic scale	Local, coastal environments
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