

Application of rule induction techniques for detecting the possible impact of endocrine disruptors on the North Sea ecosystem

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In recent years, there has been increasing concern by scientists, regulators and general public about possible adverse effects of chemicals present in the environment on the endocrine system of humans and wildlife. Since the sea is the final sink for many (persistent) pollutants, endocrine disruptive chemicals are also thought to affect our marine ecosystems. Based on available scientific literature a database of 765 chemicals with (potential) endocrine disruptive activity was developed for the North Sea Ecosystem (ED-North database, OSTC-PODO I Programme). This relational database contains information on the hormone disrupting potential, including effects and physical-chemical properties of these chemicals.

This database was used as starting point for the induction of classification trees. Classification trees predict the value of a discrete dependent variable with a finite set of values (called classes) from a set of independent variables (called attributes). Data describing a real system, represented in the form of a table, can be used to automatically construct classification trees. The use of rule induction methods, such as classification trees allows a unique interpretation of complex databases. In this perspective, future use of these and other inductive logic programming techniques can aid researchers in better understanding fundamental relationships between complex data. Classification trees will be used to explore possible relationships among exposure-effect data for the various substances in the ED-North database and the main conclusions on exposure-effect relations of these chemicals will be presented.