STANDARDIZATION OF TEST ORGANISMS AND DEVELOPMENT OF TOXICITY TESTS METHODS

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Toxicity tests in our laboratory are conducted usually with mass-reared organisms. They are under the same environmental conditions throughout seasons and are supplied at specific age. A total of 38 species of aquatic organisms are being reared. We have attempted to establish pruified strains or to select clones of various parthenogenic organisms. The merits or demerits of our culturing test organisms are discussed. The differences in the susceptibility among clones or strains of test organism are also discussed.

For a single species test, algae, daphnia, fish are often used. However, we usually use early stages, but occasionally, adults fish are used for reproduction tests. As an another important aspect, the toxicity through food chains has been studied. In this study, we select a pair of species belonging different trophic levels.

The differences between single species tests and multispecies tests will be discussed. Even a single species test intends to assess the effects of chemicals on ecosystem levels, however, this idea is not applicable to ecosystems. Single species tests with standard organisms and multispecies tests are contradictory in concept. One type of

multispecies tests is indoor microcosms being composed of several species artificially assembled, and another is composed of natural components (both indoor and outdoor). We have used three types of outdoor mesocosms using ponds and three types of artificial streams. The mesocosms is useful to not only to analyze the floral or faunal changes but also to study the fate or behaviour of chemicals in natural environments.

Lastly, usefulness of the field observation or experiments or semi-field experiments will be discussed. This will enhance the exploitation of early warning systems utilizing indicator organisms or animal behaviour.