12.0 WRITING THE ABSTRACT

The abstract is the last part of the project report to be written. It is written after the project is completed. It is a short summary of your project that informs the reader what the project covered, and what has been accomplished.

Often the abstract has to conform to a specified space or number of words. Making every word count is very important when you are completing an abstract.

Only minimal, if any, reference to previous research and experimental work may be included. The abstract focuses on this year's work. It should not include acknowledgments or the work done by a mentor.

An abstract should include:

- A statement of purpose or a hypothesis.
- The experimental design, descriptive outline of the procedures or methods.
- A summary of results.
- Your conclusion.
- Application of the research project, if you have space, and your ideas for future studies.

Four Paragraph Format

1. Brief Background and Statement of Purpose
2. Method or Design
3. Results
4. Conclusions and Applications

The conclusion should include a summary and analysis of the results and answer the reader's questions of how the results related to the purpose. It should state the relevance or significance of the results and state practical applications of the research to everyday situations.

Writing, editing, and rewriting to make every word count is a very important part of the abstract-writing process.

Sample Abstract

Effects of Marine Engine Exhaust Water on Algae
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This project in its present form is the result of bioassay experimentation on the effects of two-cycle marine engine exhaust water on certain green algae. The initial idea was to determine the toxicity of outboard engine lubricant. Some success with lubricants eventually led to the formulation of "synthetic" exhaust water which, in turn, led to the use of actual two-cycle engine exhaust water as the test substance.

Toxicity was determined by means of the standard bottle or "batch" bioassay technique. Scenedesmus quadricauda and Ankistrodesmus sp. were used as the test organisms. Toxicity was measured in terms of a decrease in the maximum standing crop. The effective concentration - 50% (EC 50) for Scenedesmus quadricauda was found to be 3.75% exhaust water; for Ankistrodesmus sp. 3.1% exhaust water using the bottle technique.

Anomalies in growth curves raised the suspicion that evaporation was affecting the results; therefore, a flow-through system was improvised utilizing the characteristics of a device called a Biomonitor. Use of the Biomonitor lessened the influence of evaporation, and the EC 50 was found to be 1.4% exhaust water using Ankistrodesmus sp. as the test organism. Mixed populations of various algae gave an EC 50 of 1.28% exhaust water.

The contributions of this project are twofold. First, the toxicity of two-cycle marine engine exhaust was found to be considerably greater than reported in the literature (1.4% vs. 4.2%). Secondly, the benefits of a flow-through bioassay technique utilizing the Biomonitor was demonstrated.