BASIC KNOWLEDGE IN MARINE SCIENCES

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Introduction

Scanning electron microscopy (SEM) has been used extensively in studying microalgae. This is because the cell size is minute and light microscopy is sometimes not good enough for observing certain important features in the microalgae. Therefore, SEM solves the problem although it is more expensive and consumes a lot of time particularly in the preparation of the cell. For dinoflagellates and diatoms, SEM is very useful and is considered as an important tool in describing new species. The three dimensional cell seen under SEM can expose the morphological characteristics including the key characteristic in identifying a particular species. They are many techniques that have been reported on how to process samples for SEM. It depends on the nature of the species. For big and strong samples such as plants and insects, the process is much easier. In this chapter, the method described is suitable for microalgae.

SEM involves many steps and chemicals of which some are hazardous. To obtain a good result, cells need to be fixed carefully and slowly. This is to prevent the cell from shrinking. The most important criteria in conducting SEM is the cell itself. If culture is used, avoid using old culture because morphology of cells at this stage may have deformed. In fixing the cell, a few chemicals have been previously used such as Osmium tetroxide (Os_{2}O_{4}), glutaraldehyde and formaldehyde. The function of fixation is to maintain the morphological structure of the cell