2.2 Conventional Methods for Toxicity Determination

2.2.1 Acute Toxicity and LD_{50}

The OECD (1983) defines acute oral toxicity as "the adverse effects occurring within a short time of oral administration of a single dose of a substance or multiple doses given with 24 hours". The objectives of acute toxicity testing are to define the intrinsic toxicity of the chemical, predict hazard to nontarget species or toxicity to target species, determine the most susceptible species, identify target organs, provide valuable information for clinicians to predict, diagnose, and prescribe treatment for acute overexposure to chemicals (Chan and Hayes, 1989). A carefully designed acute toxicity study can often provide important clues on the mechanism of toxicity and the structure-effect relationship for a particular class of chemicals (Chan and Hayes, 1989).

However, many acute toxicity studies have been conducted solely for the purpose of determining the LD_{50} of a chemical for regulatory purposes. It has to be understood here that acute toxicity testing is not equivalent to determination of the LD_{50}, because the LD_{50} is not an absolute biologic constant to be equated with such constants as pH, pKa, melting point, and