環境毒理學考題

1. Define poisons and describe several functions for poisons. (10%)
2. How has the receptor concept influenced the development of toxicity? (10%)
3. What is the difference between a biologically based extrapolation and an empirically based extrapolation? (10%) Is one more reliable than the other? (5%)
4. Describe the following: (30%)
   (4-a) The role of glucuronidation in detoxification process.
   (4-b) How QSAR (Quantitative Structure Activity Relationship) can be used to estimate the toxicity of a molecule.
   (4-c) Cytochrome P450 oxidation cycle and its function in detoxification process.
   (4-d) The biochemical mechanisms explaining the toxic effects caused by the organophosphate pesticide, Paraoxon.
   (4-e) Why biotransformation is considered as a balance between bioactivation and detoxification, using ethylene as an example.
   (4-f) How pH values affect the partitioning of salicylic acid across the gastric mucosa and influence the salicylic acid's absorption in gastrointestinal tract.
5. 試舉出三種基因毒性(genotoxicity)的測試方法並說明其原理。(10%)
6. 化學致癌物質(chemical carcinogens)的暴露可能透過何種作用機制而造成細胞的突變及進一步的癌化？如何預防？(13%)
7. 解釋下列各詞：(12%)
   (7-a) transversion mutation, transition mutation, frameshift mutation
   (7-b) teratogenesis, mutagenesis
   (7-c) DNA-adduct