Paper 154 – Sciences

MUTAGENICITY OF AMORPHOPHALLUS PAEONIIFOLIUS CORM AQUEOUS EXTRACTS USING ALLIUM TOXICITY ASSAY

Joanna Nicole G. Baniqued and Orlex B. Yllano
Adventist University of the Philippines
obyupd@yahoo.com

ABSTRACT

Amorphophallus paeoniifolius or Elephant Foot yam is widely used in folk medicine for acute rheumatism, tumors, lung swelling, asthma, vomiting, and abdominal pain. Even though this plant is currently utilized as herbal medicine in some parts of the world, its toxicity studies are not yet established. This study investigated the toxicity of A. paeoniifolius corm extracts to Allium cepa chromosomes. Results showed that as the corm concentration increases, the number of root germination of the A. cepa decreases [control (4.33), 2% (2.67), 4% (2.33), and 8% (1.00). Interestingly, the mitotic index also decreased – control (34.61%), 2% (20.75%), and 4% (11.08%), while the chromosomal aberrations increased – control (12.03%), 2% (21.08%), and 4% (59.68%). Prominent chromosomal aberrations that were observed in treated samples were laggards, vagrant chromosomes, bridge with fragments, sticky chromosomes, disoriented chromosomes and chromosomal breakage. To our knowledge, this is the first evidence of the mutagenicity and root growth inhibition of A. paeoniifolius corm extracts to A. cepa.

Keywords: Lethal Dose (LD_{50}), Allium Toxicity Assay, Mutagenicity, Chromosomal aberrations, Mitotic index