uni-edit
English Editing & Translation

Sample of Level 2 English Editing

Field of research: Biology and Ecology

Mercury toxicity induces lipid peroxidation and alters the activities of antioxidant enzymes and mitogen- activating protein (MAP) kinase in rice roots

Comment [LWH1]: CHECK: Do not use abbreviations in the title.

Mercury (Hg) is one of the most hazardous and toxic pollutants to the environment. ~~Hg~~ It is discharged into agricultural land and the environment through human activities, mainly as untreated industrial wastes. Hg is a toxic me~~n~~tal with a long biological half-life and represents a serious environmental pollutant for both animals and plants. It can accumulate in living organisms and consequently results in toxicity or even death ~~in~~ of plants [1, 2]. The predominant ~~mercury~~ Hg compounds in well-oxygenated soil environments are the soluble forms, $HgCl_2$, Hg(OH)Cl, and $Hg(OH)_2$ [3, 4]. The biochemical toxicity of ~~Mercury~~Hg ~~has many reasons~~could be due to a number of reasons, such as the propensity of mercuric ions ~~may~~to react with sulfhydryl groups of biomolecules, disruption of protein structure, ~~interference~~interruption of cell signaling pathways, and displacement of essential elements ~~and cause the formation of reactive oxygen species (ROS) through the generation of oxidative stress~~ [5]. Furthermore, Hg-induced oxidative damage~~s~~ in plants ~~have~~ has been linked to excessive production of reactive oxygen species (ROS), which may cause lipid peroxidation, enzyme inactivation, and DNA and membrane damage [6].

Comment [LWH2]: Check: What structure are you referring to here?

Lipoxgenases (LOXs; linoleate:oxygen oxidoreductase; EC1.13.11.12) are widely distributed in the plant and animal kingdom. Lipid peroxidation can be induced via an enzymatic pathway by LOX activity, which is very important for plants to protect cellular membranes and organelles from the damaging effects of ROS [6, 7]. The level of LOX activity reflects the degree of oxidative damage.

~~and it~~Specifically LOX ~~is an ubiquitously occurring enzyme that~~ catalyzes the peroxidation of unsaturated fatty acids on biomembranes, producing hydroperoxides and oxy-free radicals [8, 9]. Exposure to higher concentrations of Hg alters the activities of lipoxgenases (LOX), leading to increased ~~a remarkable~~ peroxidation of lipids in roots [3].

ROS are associated with several physiological disorders, ~~which includes~~such as increas~~ing~~es ~~the~~in mitochondrial hydrogen peroxide production, chang~~ing the~~es in mitochondrial membrane lipids, and ~~resulting in the origin of~~ tissue injury in plants [10]. The accumulation of ROS, such as the hydroxyl radical (OH^-), superoxide anion ($^{\cdot}O_2^-$), and hydrogen peroxide (H_2O_2), can damage cellular structures and inhibit function [11]. The most reactive ~~production of all~~ ROS is OH^-, which ~~and the hydroxyl radical~~ is formed from H_2O_2 by the so-called Haber-Weiss or Fenton reaction [12-14]. Controlled modulation of ROS levels in plants is extremely important. Low concentrations of ROS, ~~as signals,~~ can be used as signals to repair~~ing~~ ~~the~~ cellular damage but high levels lead to programmed cell death [15, 16]. It is well known that plants ~~with~~ have ~~the~~ antioxidant system~~s~~ to resist ~~the~~ oxidative damage~~,~~ and these systems can operate both ~~in~~ constitutive~~ly~~ and induci~~bly~~~~ed ways~~ [17].