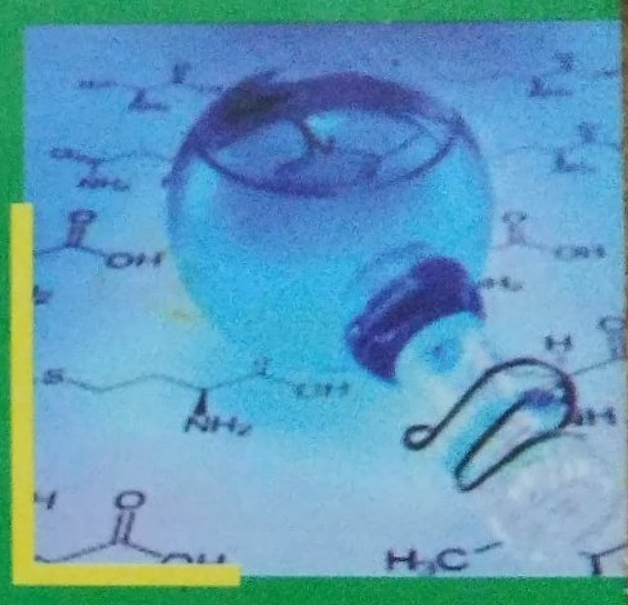
National Conference

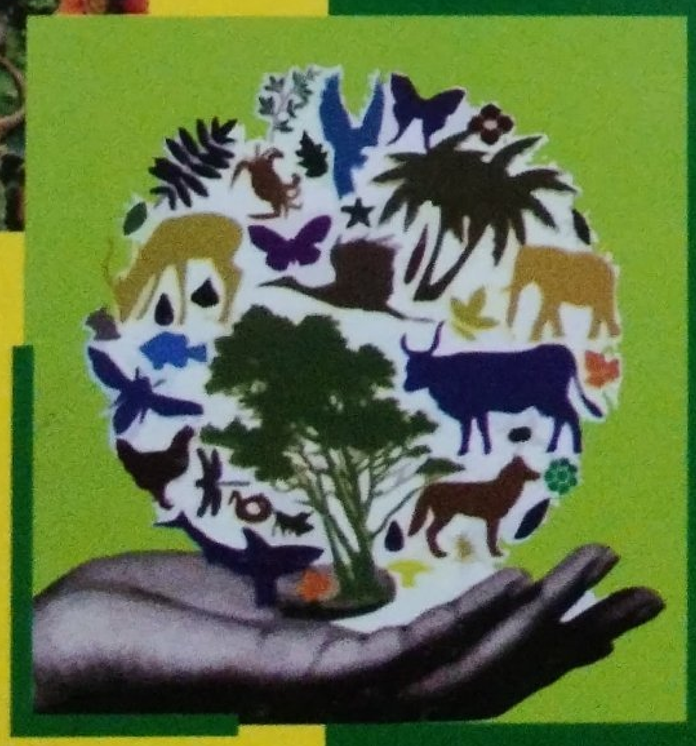
on

Biodiversity Conservation for Sustainable Development and Environment Management (BCSDEM-2018)

1st & 2nd April 2018

Souvenir cum Abstracts





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because of occupational and residential exposure, out of which 23 are the heavy elements or "heavy metals". Chromium is one of the toxic heavy metals, and is recognized for its negative effects on the environment where it bio-accumulates and poses a serious threat to environmental health. Chromium toxicity affects the plant growth and metabolism to a considerable extent, which includes stunted growth, chlorosis, reduced crop yield, delayed germination, senescence, premature leaf fall, biochemical lesions, enzymatic changes and reduced biosynthesis. Chromium exists in two stable states, i.e. hexavalent chromium (Cr^{+6}) and trivalent chromium (Cr^{+3}) of which Cr^{+6} is the most toxic form. Cr^{+3} is essential for animal and human health but unlike Cr^{+3}, Cr^{+6} is a potent, extremely toxic, carcinogenic and causes death to animals and humans, if ingested in large doses. Open cast chromite mining activity leads to various environmental problems due to released Cr^{+6}. Contamination of soil and water in chromite mining areas is a serious environmental problem.Toxic metal contamination of ground water and soil, which poses major environmental and human health problems, is currently in need of an effective and affordable technological solution. In this study, germination was conducted in Til (*Sesamum orientale* L.) in order to find out the effect of Cr^{+6} toxicity on its germination, growth and biochemical parameters. The seeds were germinated in six different concentrations of Potassium dichromate solution having 0-50 mg/l of hexavalent chromium. The pot culture experiment was done with different concentrations (10, 20, 30, 40 and 50 ppm) of hexavalent chromium. It was noted that the Seedling vigour index, Metal tolerance index were found to be reduced and the percentage of phytotoxicity was increased and biochemical parameters showed a declining trend with increasing Cr^{+6} concentrations. The seedlings treated with chromium complexes showed decreased chlorophyll and soluble protein content as compared to control while increased proline content was observed as compared to control.

Keywords: Hexavalent Chromium, Germination, Biochemical changes, Phytotoxicity, Seedling vigour index

LAKE ECOSYSTEM: ONE MAJOR NATURAL RESOURCE STORE HOUSE AND ITS CONSERVATION

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Natural resources are the most valuable gifts of nature as defined by human judgment. Lake ecosystems are such natural resources which are considered as the most productive ecosystems in the world. These ecosystems provide plant and animal products, minerals, energy sources and recreational avenues for use of humans. A large variety of species of microbes, plants, insects, amphibians, reptiles, birds, fishes etc. depend on these ecosystems which cover an area of about 86, 00,000 sq. km that constitutes 6.4% of the total surface area on the earth. The lake Chilika is one of such natural resources with great economical values on the east coast of Odisha famous for tourism, naval training centre, fishing as well as receiving end of river and ocean. It is a water fowl reserve with a wide variety of habitats such as coastal vegetation areas, marshes, mudflats, fresh water, open water with varying depth and salinity. The different vegetation type includes submerged, emergent, mixed, reed swamp bed and grass land. Seaweeds; like *Polysiphonia*, *Enteromorpha*, *Gracillaria*, *Ceramium* etc. are very significant for their high nutrition contents and phytoplankton association. The demand for seaweed is increasing at the rate of 10% every year due to its wider applications in the manufacture of toothpaste, ice-cream, textile printing, teeth filling, cosmetics, tissue culture, plywood and biofuels. In many oriental countries like