



**Green Approach to Corrosion Inhibition of Carbon Steel
in Well Water by the Extract of *Polyalthia Longifolia***

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ABSTRACT

Water extract of *Polyalthia Longifolia* (PL) is tested as corrosion inhibitor of carbon steel in well water in the presence of Zn^{2+} has been evaluated by mass – loss method. The formulation consisting of 10 mL of *Polyalthia Longifolia* extract and 5ppm Zn^{2+} offers 98% inhibition efficiency in controlling corrosion of carbon steel immersed in well water. The polarization studies showed that *Polyalthia Longifolia* extract acts as anodic inhibitor. The Nyquist plot showed that increases charge transfer resistance (R_t) and decreases double layer capacitance (C_{dl}). Finally, The protective film formed on the metal surface has been analyzed by FT-IR, SEM and EDAX Spectra.

Keywords: Corrosion inhibitor, *Polyalthia Longifolia*, Nyquist plot, FT-IR, SEM, EDAX.
