

## Biogenic corrosion inhibitor on mild steel protection in concentrated HCl medium

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**Abstract** Biofouling/biocorrosion comprises adsorption, colonization, and undesirable accumulation of molecules, and microorganisms on immersed substrata which may have a wide range of destructing effects on man-made structures in the aquatic environment. Seaweed *Turbinaria ornata* (TO) extract, tested as green corrosion inhibitor on mild steel (MS) coupons in conc. HCl medium with efficiency of 100% at 25 g l<sup>-1</sup> in 5 min time. Antibacterial efficacy was performed against 16S rDNA identified marine biofilm bacteria (MBB) and human pathogenic bacteria (HPB). Maximum inhibition growth of 16 mm on MBB was observed in *Bacillus megaterium* (MBF14 - AB894827) and 20 mm on HPB in *Escherichia coli* (B5 - NCIM 2931). Similarly, a minimum of 10 mm on MBB was witnessed in *Pseudomonas* sp., (MBF9 - AB894829). Toxicity studies proved 50.0% LC50 at 500 µg ml<sup>-1</sup> in 24 hrs, whereas *Balanus amphitrite* resulted in 100% mortality within 12 hrs. FT-IR and GC/MS results confirm, that 10-Octadecaonic acid is a major corrosion inhibitor for MS. As the *T. ornata* extract exhibited antifouling activity, it can be considered a novel antifoulant for developing antifouling formulation in the future.