Title of Article: Environment Induced Failure of Mild Steel in 2 M Sulphuric acid using *Chromolaena odorata*.

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Abstract: Failure investigation of mild steel sample in 2 M sulphuric acid solution in the presence of *Chromolaena odorata* extract was conducted using the gasometric method. Mild steel coupons, each measuring 4 cm by 1.5 cm were completely immersed in test solutions of free acid and also those containing extract quantities of 60, 100 and 140 cm$^3$ at a temperature of 333K for 60 minutes. The volumes of hydrogen gas evolved from the experiment were recorded and analyzed. The result showed that maximum inhibitor efficiency which has a relationship with lowest corrosion rate was obtained at the highest inhibitor concentration of 140 cm$^3$, with reduction in the corrosion rate observed to follow in order of increasing extract volume. Temkin isotherm best described the metal surface interaction adsorption mechanism. Once concentration of the acid is known, an expression for estimating corrosion rate values in the presence of the extract was obtained. Also, the photomicrograph study showed a direct relationship between the extract quantity and the extent of corrosion. Sample immersed in the 140 cm$^3$ extract quantity showed no trace of the third phase but rather the presence of a finely distributed pearlite phase indicating that increased inhibitor concentration led to a reduction in the deterioration of the metal.