

## Utilization of Watermelon Rind Extract as Green Anti-Scalent for Cooling Water Systems

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**Abstract :** The effect of watermelon rind extract as green inhibitors for the formation of calcium sulphate scale have been investigated using conductivity measurements concurrently with the scanning electron microscopy (SEM), and optical microscopic examinations. Mineral scales were deposited from the brine solution by cathodic polarization of the steel surface. The results show up that the anti-scaling property of the extracts could be attributed to the presence of citrulline. In solution, citrulline retards calcium sulphate precipitation via formation of a complex with the calcium cations. Thin, smooth and non adherent film formed over the steel surface, under cathodic polarization, by the deposition of the calcium- citrulline complex. The stability of the aqueous extracts with time was also investigated.

**Keywords :** anti-scaling, scale inhibitor, green extracts, water treatment

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