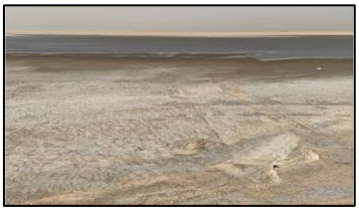

Macroaggregates formed from calcium oxide salts that resist abrasive forces in arid regions

Oral Defence by PhD Candidate [Fatima Safar]

[Department of Natural Resource Sciences]

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Abstract

Soil resistance to external abrasive forces depends on aggregate stability. The purpose of this work is to determine the efficiency of calcium oxide solutions to form abrasion-resistance macroaggregates and assess the temporal stability of calcite-stabilized macroaggregates when exposed to the temperature and relative humidity conditions of a typical arid region. Moreover, this work evaluates the durability of calcite-stabilized macroaggregates in the presence of sodium. Stability of macroaggregates formed with $CaCO_3$ or $Ca(OH)_2$ against abrasion was tested. Larger macroaggregates formed by increasing the concentration of Ca^{2+}. Expandable clay was also influential. This study showed that calcite is a potentially good soil stabilizer at the time of the year when it is hot and dry, and when Ca^{2+}: Na^{+} in soil solution.

About the Candidate:

Fatima is a Ph.D. candidate in the Department of Natural Resource Sciences, McGill University, under the supervision of Pro. Joann K. Whalen . She received both her bachelor degree in civil engineering and her master degree in environmental science from Kuwait University. Her project is about macroaggregates formed from calcium -oxide salts that resist abrasive forces in arid regions.