Isolation and description of metabolites and chenopodium quinoa extracts (varieties: *markjo*, *amarilla de sacaca and amarilla de maranganí*) and verification of their efficiency as potential natural biocides

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Parasites pests affect both livestock and agriculture, decreasing their production and, therefore, their profitability. Synthetic biocides are generally used to struggle them observing, however, resistance in some species. This research seeks to find ecological and bio-sustainable alternatives to synthetic biocides using extracts and bitter quinoas metabolites -abundant in our country- that contain saponins and other substances. These extracts would serve as a basis for potential eco-friendly insecticides and acaricides with low levels of toxicity. First, three varieties of bitter quinoas were selected: *Amarillo de Maranganí, Amarillo de Sacaca* and *Marjko*, from which extracts were obtained in different solvents to evaluate their acaricide and insecticide properties.

Biological tests were:

Selection bioassay which evaluates the anti-alimentary index. The species S. litorallis ("black doughnut") was tested confirming that is the most active with a 32.30% of inhibition.

Germination bioassay which allows observing the hexanoic extract from the quinoa *Marjko* showed greater growth inhibition of lettuce roots (Lactuca sativa).

Nematode bioassay, which assesses pest mortality. The aqueous extract from quinoa *Maranganí* was the most active. The ixodicide activity evaluated the mortality and survival of larvae of ticks before the action of extracts, using ticks *H. lusitanicum R. bursa* and *R. sanguineus Alemani*. The results of the acaricide activity of the three tested quinoas are not significant with used ticks. Reached maximum values were 30% that is considered an intermediate activity.

Currently, isolation of metabolites and their description are performed. *Marjko* was the selected quinoa due to its bioactivity results.