





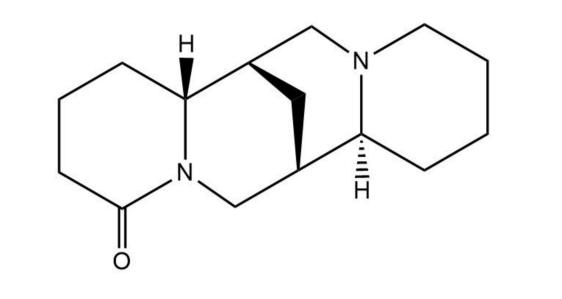


EVALUATION OF THE DEBITTERING WASTEWATER FROM Lupinus mutabilis Sweet AS A CORROSION INHIBITOR OF ADMIRALTY BRASS IN ACID MEDIA

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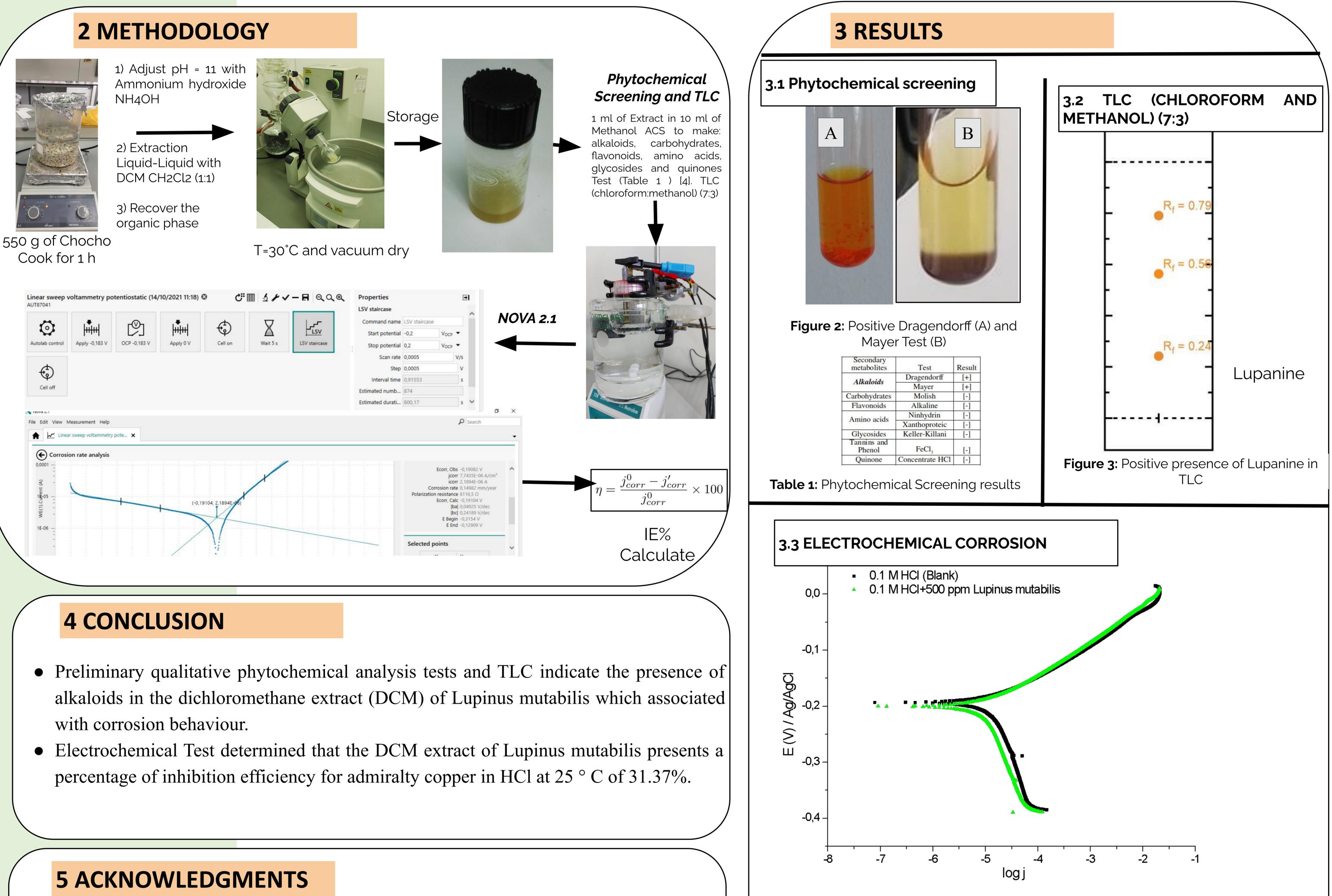
INTRODUCTION



Lupinus mutabilis Sweet (Chocho) is a fruit plant belonging to Lupinus family, which is a native South America origin. The phytochemical analysis of Lupinus genus shows secondary metabolites, such as fatty acids, esters, sterols, isoflavones, and alkaloids (2). Furthermore, Lupinus genus is characterized by the presence of abundant quinolizidine alkaloids (QA). In Lupinus *mutabilis* specie is reported the presence of the following QA: Lupanine (46%) (Fig.1), Sparteine (16%), 3β-hydroxylupanine (12%), and 13α-hydroxylupanine (7%) (3). It has been reported that alkaloids, such as Lupanine and Sparteine have shown effects as corrosion inhibitors in steel and aluminum representing a new option to prevent corrosion problems (3). The main use of this specie is in food industry, that produces a considerable amount of cooking wastewater, where alkaloids are present. This project proposes to obtain extracts of L. mutabilis Sweet from wastewater resulting of cooking of chocho, which will be

Figure 1: Lupanine Quinolizidine alkaloids

phytochemically characterize by spectroscopic methods, and evaluated as corrosion inhibitors by electrochemical methods.



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Figure 4: Potentiodynamic polarization curves for admiralty brass in 0.5 M HCl in the absence and presence of *Lupinus mutabilis* Sweet (Chocho) (at 25°C)



development, and innovation work through its CEPRA program, especially for the CEPRA XV-2021-015 inhibidores de corrosión de cobre fund.

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Results	E _{corr} (V)	β _c (mV/dec)	β _a (mV/dec)	j _{corr} (µA/cm²)	IE %
0.5 M HCl	-0,183	264, 1 10	54,055	14,52	0
0.5 M HCl + 500 ppm extract <i>Lupinus mutabilis</i>	-0,190	234,220	54,230	9,53	31,37

Table 2. Linear polarization parameters for admiralty brass in 0.5 M HCl in the absence and presence of *Lupinus mutabilis* Sweet (Chocho) (at 25°C)



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