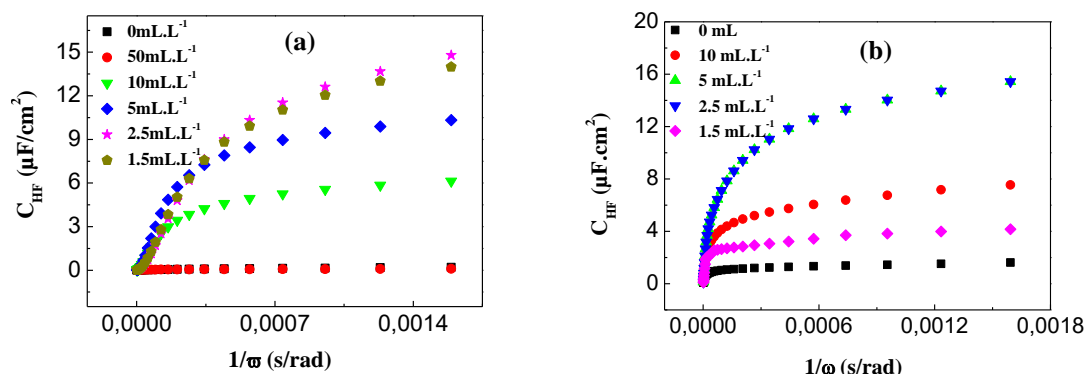








With the aim to determine the rate of covering of both electrodes according to the addition of various concentrations in inhibitor, we drew the values of the high-frequency capacities according to  $1/\omega$  (images 4a and 4b) and their exploitation is presented in table IV.



**Image 4.** Values of high-frequency capacities of (a) gold and (copper) substrates in the presence of different concentrations of green inhibitor. TH=30°F. T=20°C,  $\omega=500$ tr/mn.

$C_{HF}$  increases with the decrease of the concentration in inhibitor until the value of 2.5 mL.L<sup>-1</sup> in content of extract then decreases, it means that the rate of covering of both electrodes decreases with the diminution of the content in green inhibitor until the optimal concentration then increases slightly. The value of high-frequency capacity registered in the presence of the effective concentration on the gold is widely superior to that found on the copper, what denotes a better efficiency of the green inhibitor on the golden substrate. These results confirm with those found by the chronoamperometric measures.

**Table IV.** Values of high-frequency capacities for gold and copper substrates in the presence of different concentrations of green inhibitor. TH=30°F, T=20°C,  $\Omega=500$  tr/mn.

$C_{green\ inh}$ (mL.L <sup>-1</sup> )		0	50	10
$C_{HF}$ (μF/cm <sup>2</sup> )	Gold	0.61	-	4.3
	Copper	0.27	-	5.5
$C_{green\ inh}$ (mL.L <sup>-1</sup> )		5	2.5	1.5
$C_{HF}$ (μF/cm <sup>2</sup> )	Gold	7.5	8.5	8
	Copper	11.4	11.4	3.3

**4. Conclusions** - The chronoamperometric and electrochemical impedance spectroscopy results allowed to notice the excellent inhibitive efficiency of the plant extract, at room temperature, in very low contents, what allows us to recommend its use in the distribution networks of waters intended for the consumption or the waters of irrigation. The optimal concentration of the green inhibitor was 2.5 mL.L<sup>-1</sup> on both gold and copper substrates.

**5. References**

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