

Title: Obtaining and characterization of the ethanolic extract of the leaves of the Tradescantia Spathacea SW

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1. Introduction



The synthesis of green inhibitors from the flowers, leaves, and roots of different plants can find practical and sustainable solutions to the internal corrosion problems in steel¹. The organic compounds contained in plants have demonstrated the ability to inhibit the process of corrosion.



Figure 1. Corrosion in the oil industry (Umoren et al., 2019).

Figure 2. *Tradescantia Spathacea* SW.

¹(Kesavan et al., 2012; Mazumder and Abstract, 2013; Miralrio and Vázquez, 2020a; Tejeda Benítez et al., 2014).

2. Objective

To obtain the ethanolic extract of the leaves of *Tradescantia Spathacea* SW for its characterization by UV-Vis spectroscopy, FTIR, and phytochemical tests.

2. Methodology

2.1 Obtaining the extract of the plant *Tradescatia Spathacea* SW

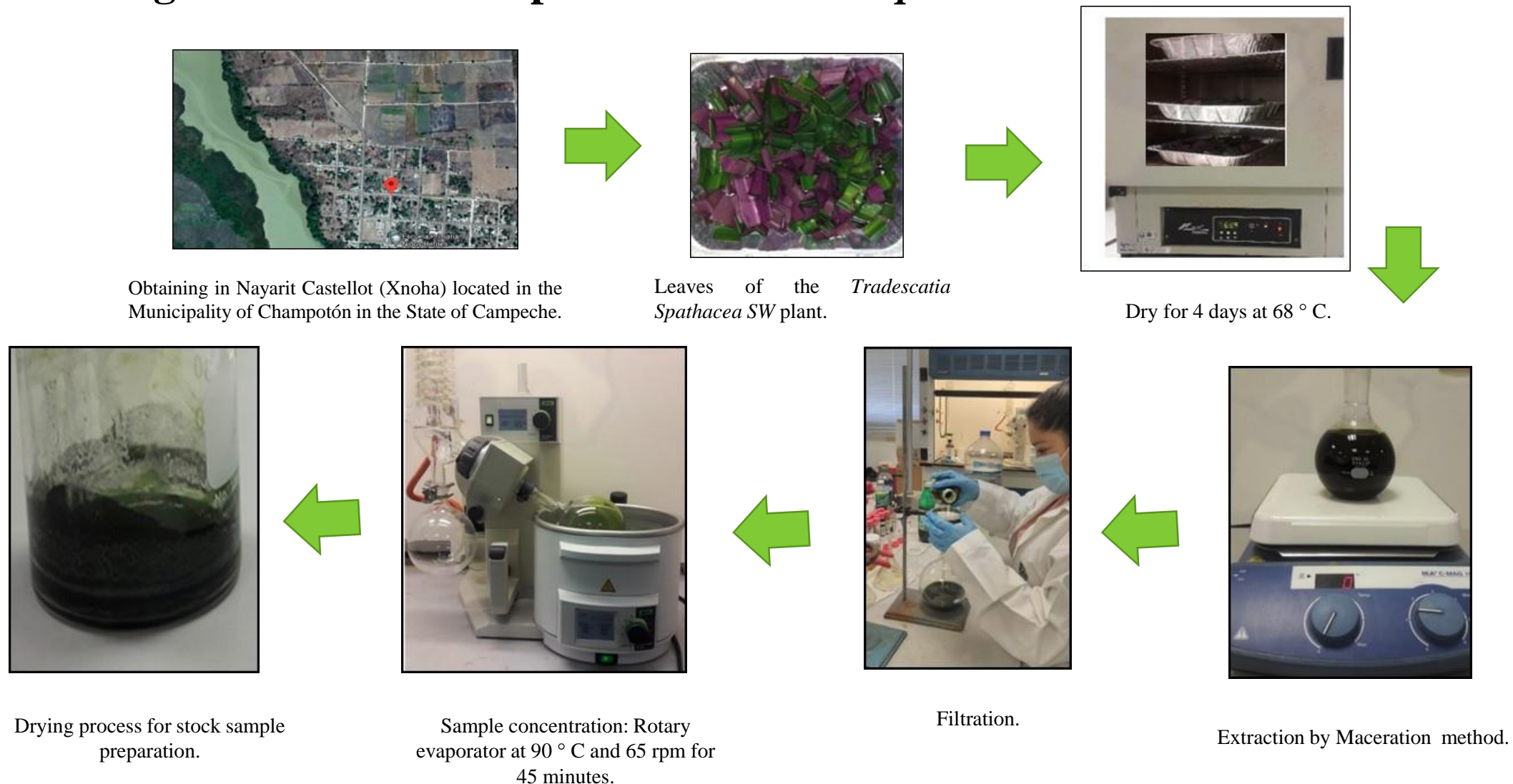


Figure 3. Collecting, cleaning and drying the leave *Plant Tradescatia Spathacea* SW and obtaining the extract.

2.2 Characterization of the extract

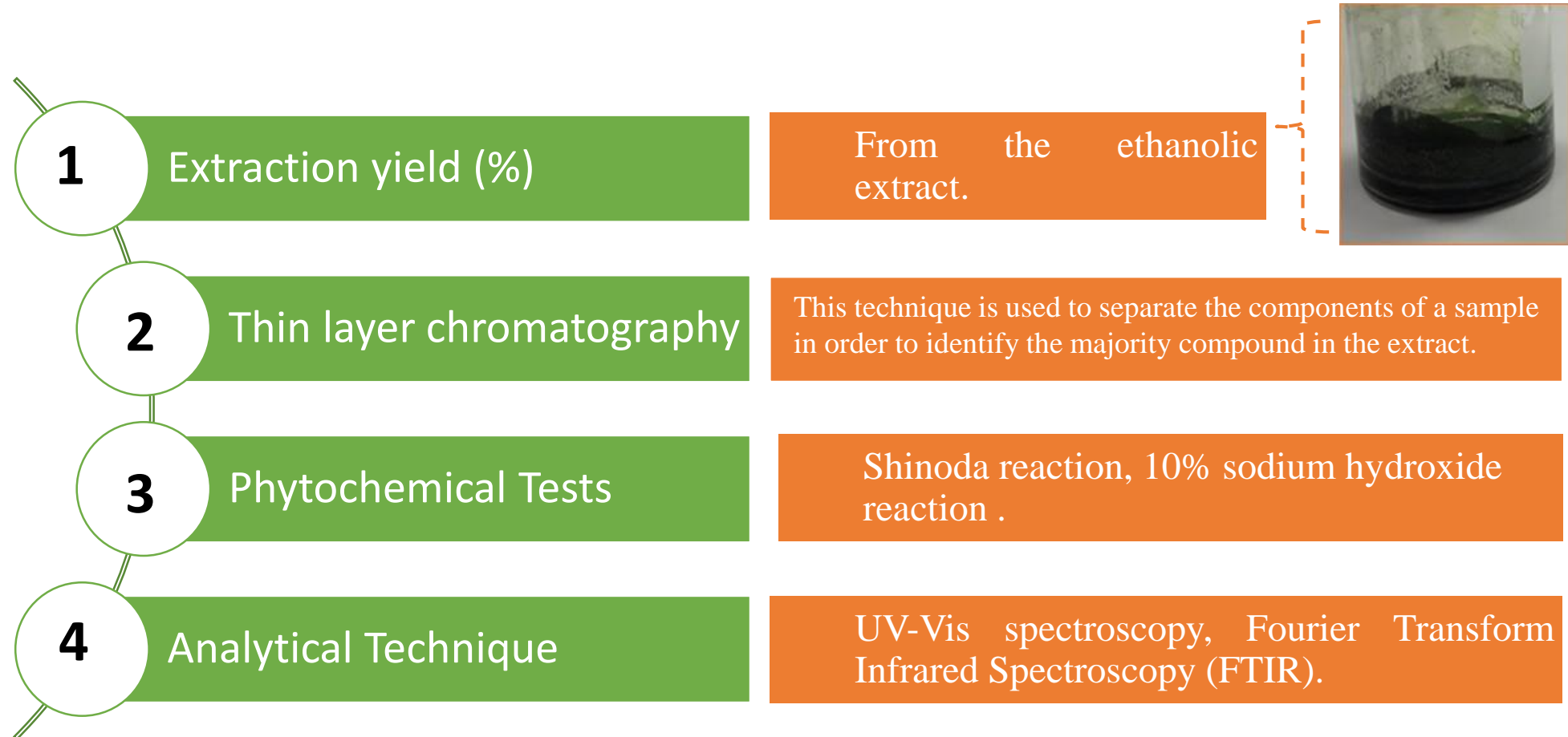


Figure 4. Characterization of the extract by physicochemical techniques.

3. Results

3.1 Extract throughput



Figure 5. Extract without purification.

Table 1. Extract throughput.

Datos	Valor
Dry leaf weight	25 g
Solvent volume	250 mL
Temperature	25 °C
Volume of extract recovered	100 mL
Weight of the extract after the concentration process using the rotary evaporator	6.5 g

$$\% \text{ Throughput} = \frac{W_{\text{Dry extract}}}{P_{\text{initial sample}}} \times 100 = 26\%$$

3.2 Characterization of the extract

- Thin Layer Chromatography (TLC)

A retention factor (R_f) of 0.40 was determined. This technique allows revealing the number of polyphenols present in the sample. However, to identify which polyphenols are present requires other techniques) (Auwal et al., 2014).

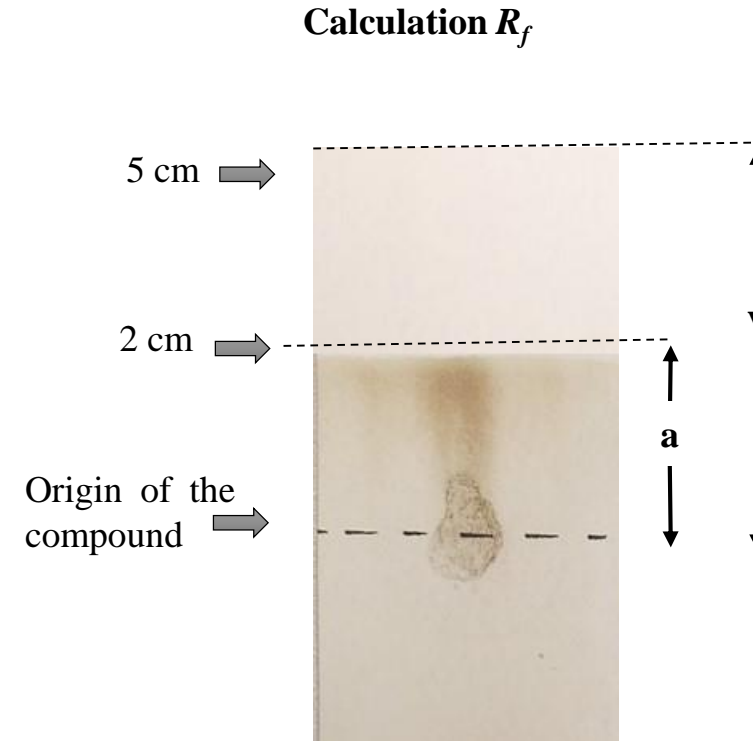


Figure 6. Thin layer chromatography of the ethanolic extract.

3.2 Characterization of the extract

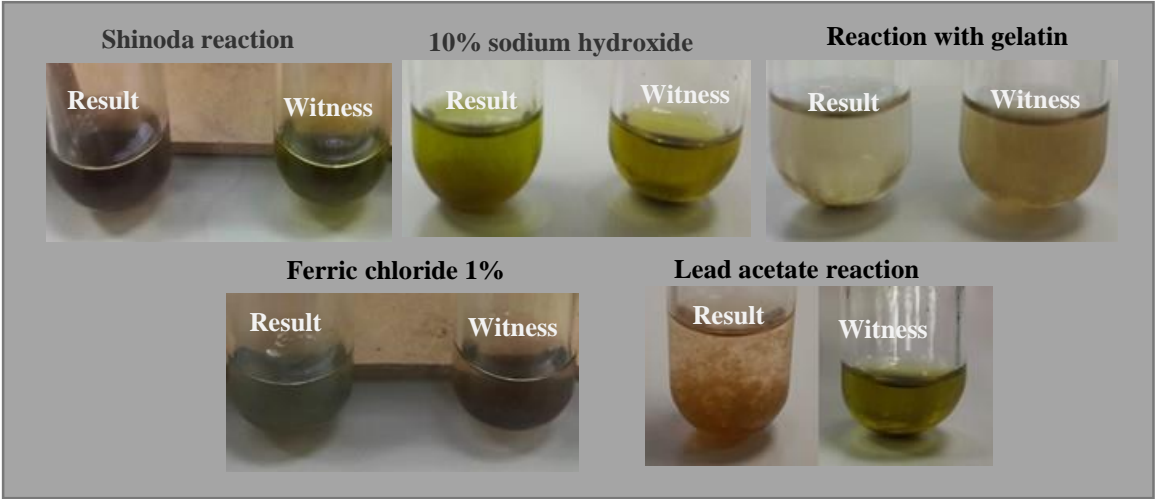
- Phytochemical characterization

Phytochemical tests are used to know the organic compounds, in this case, they were used to identify the polyphenolic compounds present in the extract².

Table 2. Phytochemical tests of the ethanolic extract.

Phytochemical Test	Results		Identified Organic Compounds	
Shinoda reaction	Positive	Negative	Flavonols, Flavonones, Aurones.	Flavones, Chalcones,
10% sodium hydroxide	X		Flavonols, Chalcones, Xanthones.	Flavones,
Ferric chloride 1%	X		Derivatives of Catechol	
10% sodium hydroxide	X		Tannins	
Foam height test		X	Saponins were not detected	

Figure 7. Result and witness of the Phytochemical tests.



² (Tan et al., 2015; Villarreal-Ibarra et al., 2015).

- **Spectroscopic techniques**

A maximum peak is observed at **270 nm** corresponding, to flavonoid-type structures and the phenolic group (Porras & López, 2009).

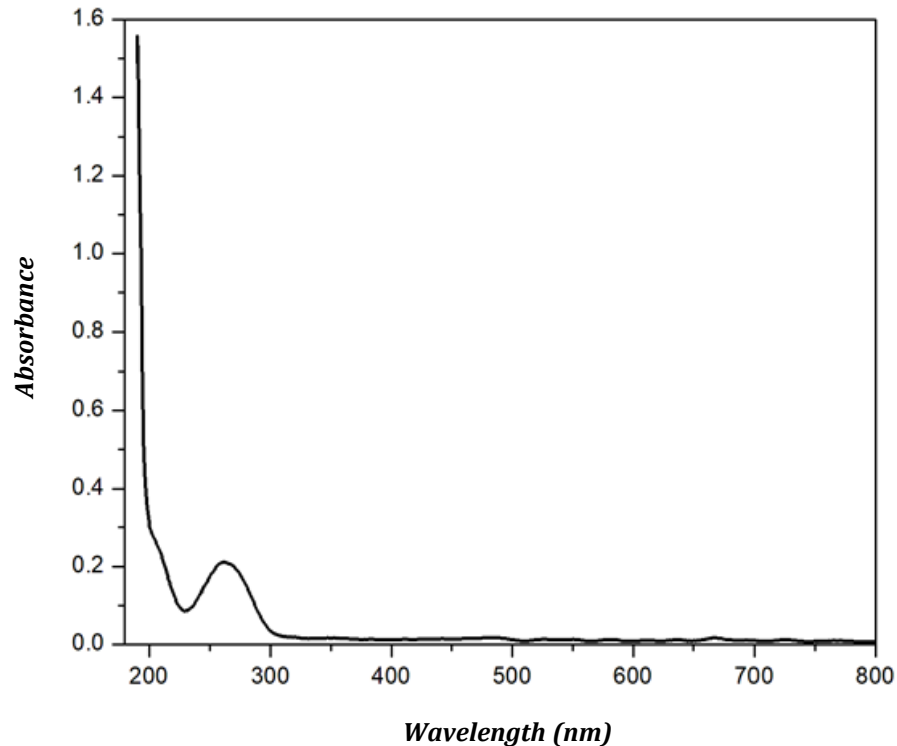


Figure 8. UV-Vis spectrum of the extract.

A maximum peak of **3344 cm^{-1}** is associated with the OH band characteristic of the presence of alcohol, phenol, polyphenols. (Interaction & Sales, 2010).

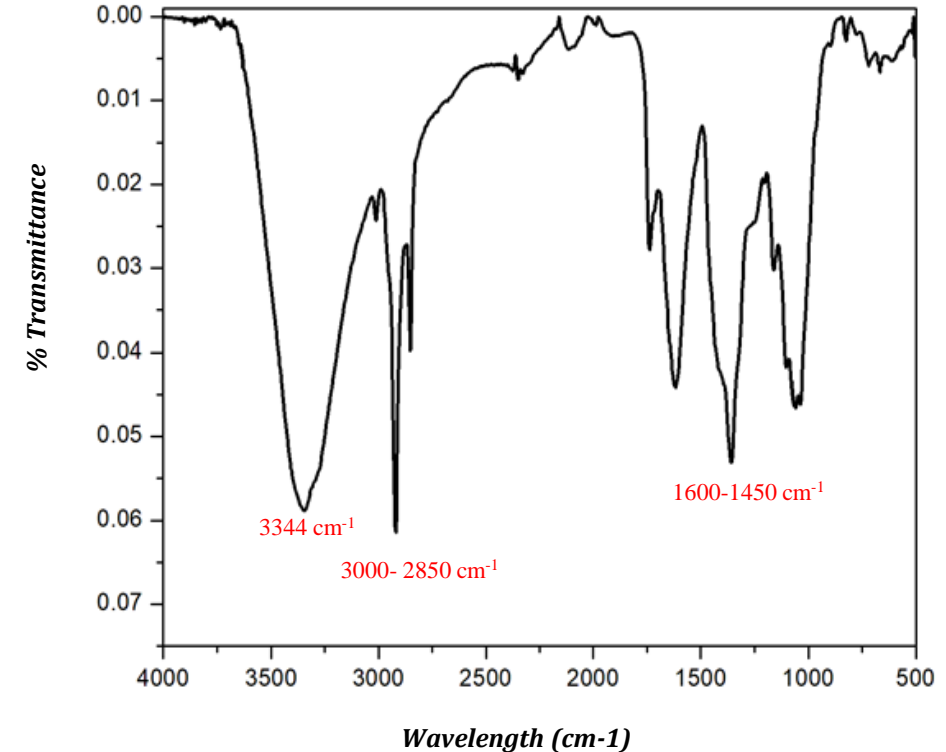


Figure 9. FTIR spectrum obtained from Tradescantia ethanolic extract.

4. Conclusions



The ethanolic extract of the leaves of the *Tradescantia Spathacea* SW plant was obtained through the maceration process. The purification of the extract with hexanes and, hexanes with ethylene was not achieved because the samples presented decomposition before their natural drying process to the elaboration of a concentrate. On the other hand, it was possible to evaluate its compounds with the ethanolic extract without purification.

The phytochemical tests showed polyphenols in the extract obtained from the leaves of the *Tradescantia Spathacea* SW plant. Finally, the UV-Vis spectroscopy test confirmed the presence of polyphenolic groups with flavonoid-like structures, and the FTIR results showed the presence of different functional groups, mainly the characteristic bands of the phenol group.

It is important to mention that this study affects a current topic and opens a vast research panorama, promoting the study and using native resources.

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