

Sap Sample Analysis

For nutrient determination with IMACIMUS analyzer: Potassium (K⁺), Nitrate (NO₃⁻), Ammonium (NH₄⁺), Calcium (Ca²⁺), Magnesium (Mg²⁺), Sodium (Na⁺), Chloride (Cl⁻), and pH.

Introduction

This procedure describes the methodology for the manual extraction of sap samples.

Sap ions are measured in an aqueous matrix such as water or a solution of diluted salts, so the result depends on the degree of dilution (sap-water ratio added). Therefore, it is important to control with accuracy the amount of water added.

The selective electrode technique offers the quantification of free ionic species in solution. The elements that are not dissociated or in the chelate form are not determined directly.

Obtaining the sample

For this procedure the requirements are to have: a colander, a mortar and a heating plate. Steps to follow:

1. Obtaining the sample: collect already mature but young leaves of the vegetable that you want to analyze. Collect aliquots of the sample according to the analysis needs: Leaves + stems, only stems or only leaves.
2. Sample preparation: This section shows 2 different methodologies for the preparation of the sample.

Preparation A: Collect the procedure recognized by the EU, extraction in hot water.

Preparation B: A more simple and direct process based on the extraction of sap by pressing, is supported by high level scientific studies.

Preparation (A) of the sample in hot water

Steps to follow:

1. Chop the sample into portions of about 2 cm in length (approx.).
2. Weigh 10 gr. shows.
3. Transfer to a mortar and well macerate the sample.
4. Add 50 ml of deionized water to about 100 oc, ensuring that the water completely covers the vegetable sample.
5. Allow to cool to room temperature, stirring slightly from time to time.
6. Separate the extract from the sample with the help of a strainer.
7. The sample is ready for analysis.

Preparation (B) of the sample by pressing

Steps to follow:

1. Chop the sample into portions of about 2 cm in length.
2. Weigh 10 gr. sample and introduce them into a garlic presser.
3. Press the sample with the press, collecting the sap obtained in a container: Exercise similar pressure for all samples. Channel the extracted liquid with a funnel, to the container.
4. With the help of a graduated syringe, take 2 ml of sap and transfer it to a small glass. Add 20ml of deionized water. Other dilution factors or volumes according to the user's criteria.
5. Homogenize the content with the help of a rod or spatula.
6. The sample is ready for analysis.
7. The equipment value mg / L corresponds to the dilution made.