

Supporting Information

Easy synthesis of doped graphitic carbon nitride nanosheets as new material for enhanced DNA extraction from vegetal matrices using a simple and fast protocol

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Galbraith Laboratories Elemental Testing

Visit the website for detailed specifications (<https://galbraith.com/services/elemental-testing/>)

Methods:

Carbon (Total, Inorganic, Organic)

Carbon values are determined either through combustion analysis and/or coulometric titration. For total carbon, an elemental analyzer is used which burns the sample in pure oxygen, producing combustion products which are then analyzed using a thermal conductivity detector, or measured as they pass through infrared cells. For inorganic carbon, carbon dioxide is liberated when the sample is heated and acidified, which is then swept into an absorption cell and is titrated coulometrically. Organic carbon may be calculated by subtracting the difference between the total and inorganic carbon values. Alternatively, for aqueous sample materials with low levels of carbon, total organic carbon can be determined using a TOC Analyzer, which combusts the sample and measures the combustion products using non-dispersive infra-red (NDIR) detection.

Hydrogen

Hydrogen values are determined using an elemental analyzer for combustion analysis. The instrument burns the sample in pure oxygen, producing combustion products of carbon dioxide, water, and nitrogen which are then separated and analyzed in a thermal conductivity detector, or measured as they pass through

infrared cells. The results are calculated from a response factor and based on sample weights.

Nitrogen (Combustion, Kjeldahl)

Nitrogen is determined by the use of either an elemental analyzer for combustion analysis or using the Kjeldahl technique. For the combustion technique the instrument burns the sample in pure oxygen, producing combustion products of carbon dioxide, water, and nitrogen which are then separated and analyzed in a thermal conductivity detector. The results are calculated from a response factor and based on sample weights. For the Kjeldahl technique, the sample is digested with sulfuric acid, sodium sulfate, and copper sulfate. The organic material is oxidized, and the nitrogen converted to ammonium sulfate. The resulting ammonia is distilled, absorbed in boric acid solution, pH adjusted, and titrated using sulfuric acid or analyzed using an ion selective electrode.

Oxygen

Oxygen is measured using a combustion technique where the instrument pyrolyzes the sample in an inert atmosphere (helium). During the pyrolysis, nitrogen, hydrogen, and carbon monoxide are formed when they contact a nickel-plated carbon catalyst at 1060°C. These products separated via a chromatographic column, and the carbon monoxide is analyzed in a thermal conductivity analyzer, providing the oxygen percentage.

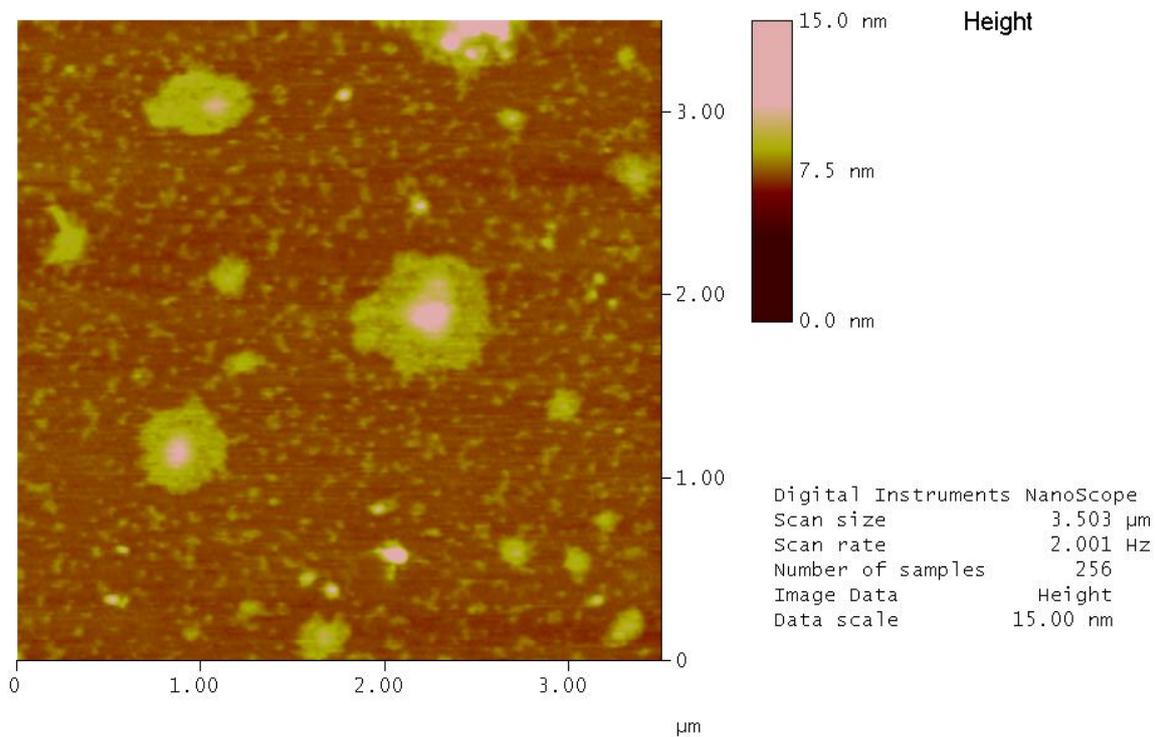
Metals

Metals services provide an extensive range of preparation techniques and instrumentation methods that can be utilized to measure Group I metals, Group II metals, Transition metals, Metalloids (i.e., boron, silicon, germanium, etc.), and some Non-Metal elements (i.e., sulfur and iodine) in a wide variety of sample matrices. Preparation methods include wet ash digestion, water dilution, solvent dissolution, dry ash, microwave assisted acid digestion, and several types of fusions. The types of instrumentation available are ICP-AES, ICP-MS, FAA, GFAA, and CVAA.

Note: Final g-POCN stoichiometry was calculated considering only the C, N, O, H and P, the residual Zn was subtracted from the elemental ponderation, to lead a non-metallic adjusted formula.

Analysis	Method
<i>C</i> : Carbon	GLI Procedure ME-14
<i>dO8</i> : Oxygen by difference	Calculation
<i>Dry</i> : Dry	GLI Procedure 3.2.3.6
<i>H</i> : Hydrogen	GLI Procedure ME-14
<i>N</i> : Nitrogen	GLI Procedure ME-14
<i>P</i> : Phosphorus	GLI Procedure ME-70

Figure S1. Elemental Analysis Report Methods.



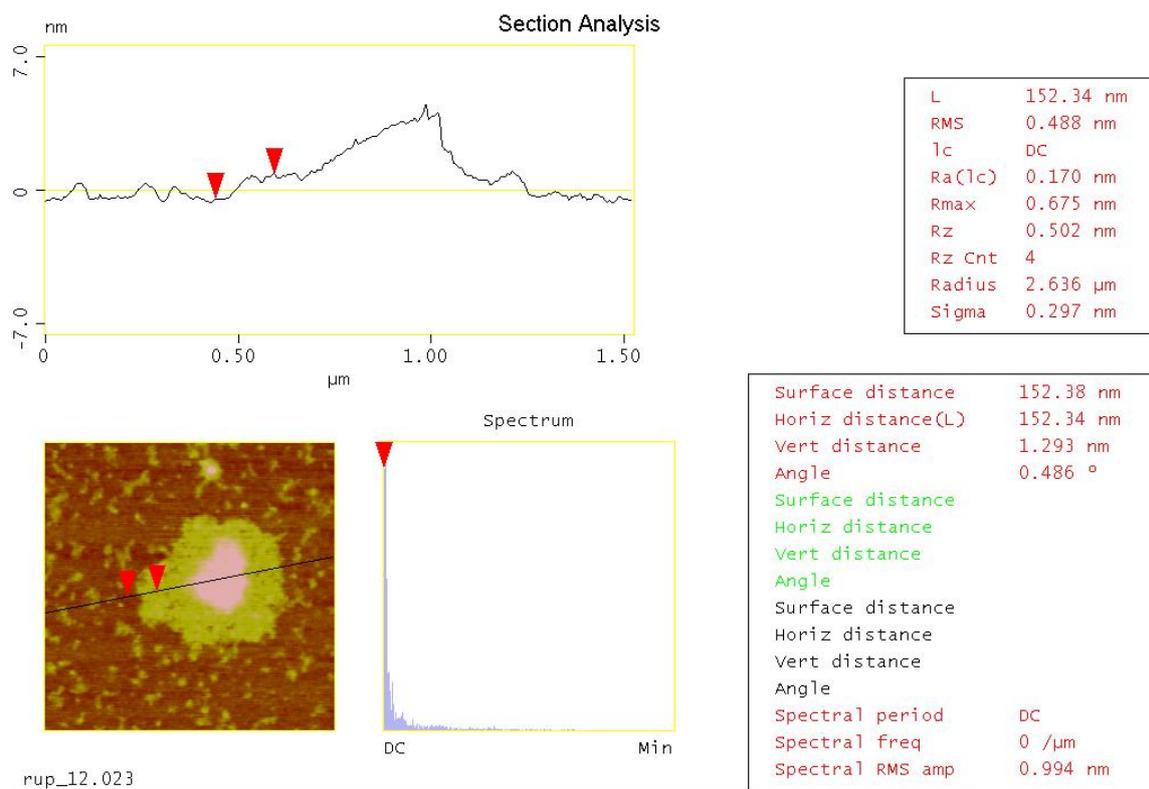


Figure S2. AFM data obtained from the surface analysis.

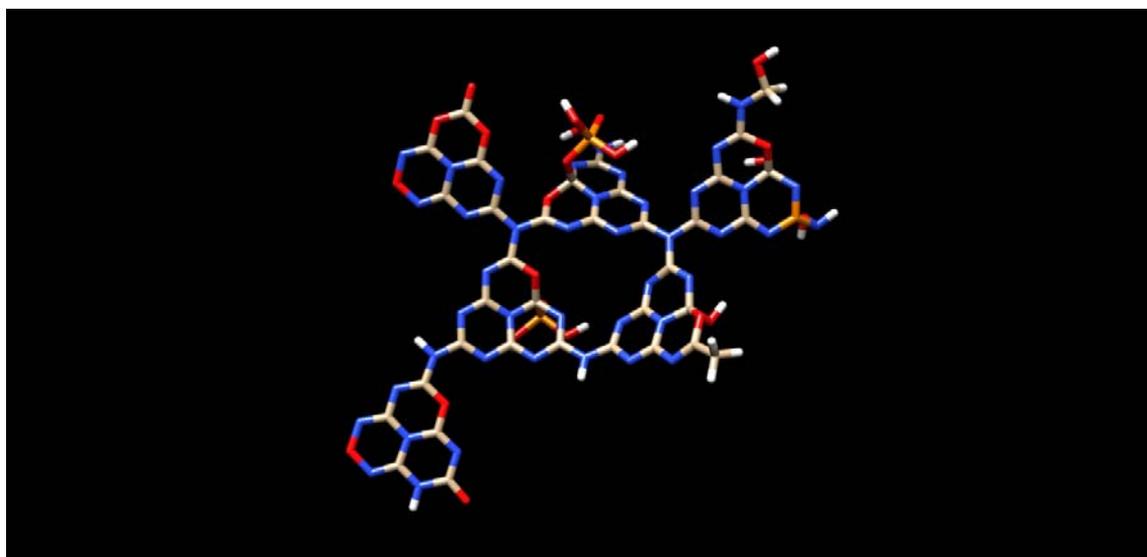


Figure S3. g-POCN modeled fragment in Chemdraw, optimized by Avogadro and Chimera software.