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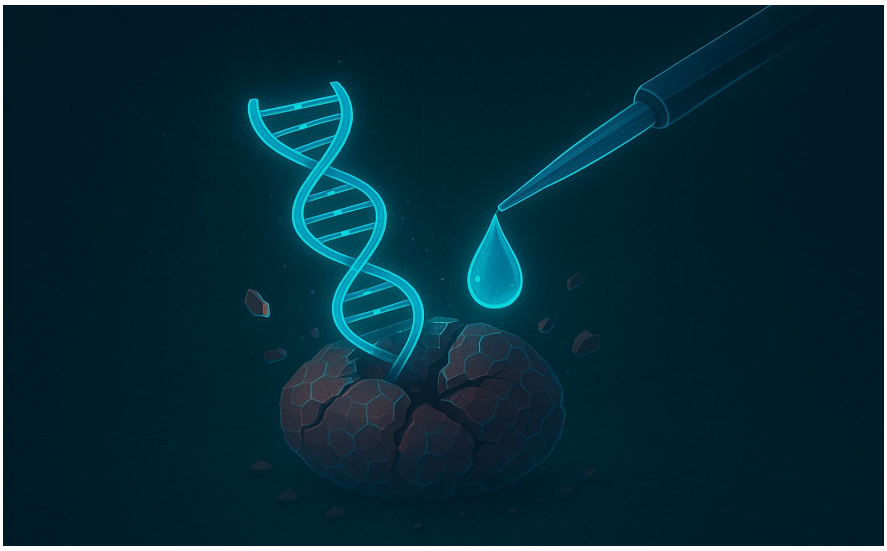
Licensing Opportunity

TTO – Technology Transfer Office

Method for Enhanced DNA Extraction from Clay-Rich Porous Media



DNA strand released from a clay-rich soil particle using a phosphate-based compound designed to disperse and saturate clay materials during extraction.

Ref. Nr

6.2729

Keywords

Nucleic acids, DNA extraction, clay, soil

Intellectual Property

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Publications

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Description

Current methods for extracting nucleic acids, particularly DNA, from complex porous samples like clay-based soils or rock media face fundamental challenges. Clay particles in these samples can adsorb nucleic acids through electrostatic interactions, leading to low yields and contamination. Standard lysis and extraction procedures often fail to fully separate DNA from clay matrices, particularly as flocculation and aggregation further complicate yield and purity.

The present technology overcomes these barriers through the incorporation of a phosphate-containing compound specifically designed to disperse and saturate clay-based materials during extraction. This approach enables efficient cell separation and DNA release, drastically improving nucleic acid recovery in challenging matrices.

Advantages

- Significantly increased DNA yield from clay-rich samples compared to standard methods
- Enhanced purity through efficient clay particle saturation and nucleic acid isolation
- Versatile: compatible with DNA and RNA extraction
- Scalable and modular format suitable for small-scale lab use or automated high-throughput platforms
- Proven effectiveness across diverse clay-heavy samples such as bentonite-rich sediments or shale rock

Applications

- Environmental genomics
- Archaeogenetics
- Forensic Science
- Bioremediation & Bioprocessing
- Academic & Industrial R&D