Proposition for tutored project

Metabolomic study of chemical profile variability in *Cannabis sativa* under homogeneous cultivation conditions

Company:

Futura Gaïa Technologies

Tutor:

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Context:

Futura Gaïa Technologies is a pioneering company specializing in soil-based vertical farming through its GiGrow® rotative cultivation systems. By integrating advanced agronomy with innovative technology, Futura Gaïa Technologies offers sustainable farming solutions that optimize space, water, and energy, enabling year-round, pesticide-free crop production in controlled environments.

Cannabis sativa, a valuable plant for both medicinal and recreational uses, is especially prized for its CBD content in indoor farming. However, there is a lack of information on how Futura Gaïa's cultivation practices affect the plant's overall metabolic profile, including key compounds like CBD, and more globally, cannabinoids.

Objectives:

- Conduct a literature review to gain a deeper understanding of how cultivation parameters affect key molecules of interest in *Cannabis sativa*.
- Develop and implement a protocol to analyze the metabolic profile of *Cannabis sativa* using advanced metabolomic technologies in collaboration with Avignon University. A special focus is expected on cannabinoids.
- Bonus objective: Identify or gather insights into metabolomic markers associated with cultivation conditions.