



Showcasing collaborative research from the Jordanian CO₂ Team, represented by A. K. Qaroush (The University of Jordan), F. M. Al-Qaisi and A. F. Eftaiha (The Hashemite University), K. I. Assaf (Al-Balqa Applied University), and P. G. Jessop (Queen's University, Canada).

Biomimicry of CO₂ transfer through a biotin-mediated ATP-free pathway

In this work, sodium bicarbonate and Mukaiyama's Reagent were converted into Mukaiyama carbonic acid, which reacted with biotin to form biotin carbamido-carboxylic acid that enabled the synthesis of sodium oxaloacetate from sodium pyruvate under mild conditions, representing an alternative to the biotin-dependent carboxyltransferase pathway *in vivo*. This reaction provides a proof-of-concept for fixing CO₂ into value-added organic molecules.

Image created by Khaleel I. Assaf.

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As featured in:



See Abdussalam K. Qaroush, Feda'a M. Al-Qaisi, Ala'a F. Eftaiha *et al.*, *Green Chem.*, 2025, **27**, 12613.