

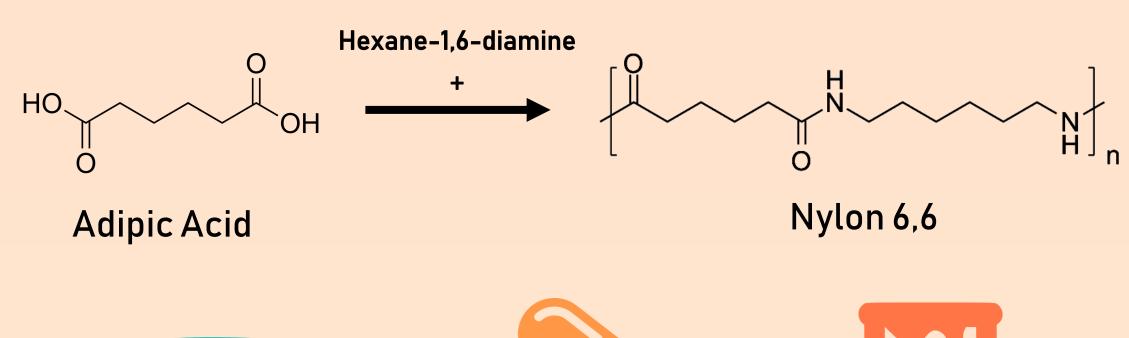
A Disruptive Initiative: Bio-Based Production of Adipic Acid

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Introduction

Goal: To develop a bio-based adipic acid process capable of capturing 1% of the current global adipic acid market





Glucose





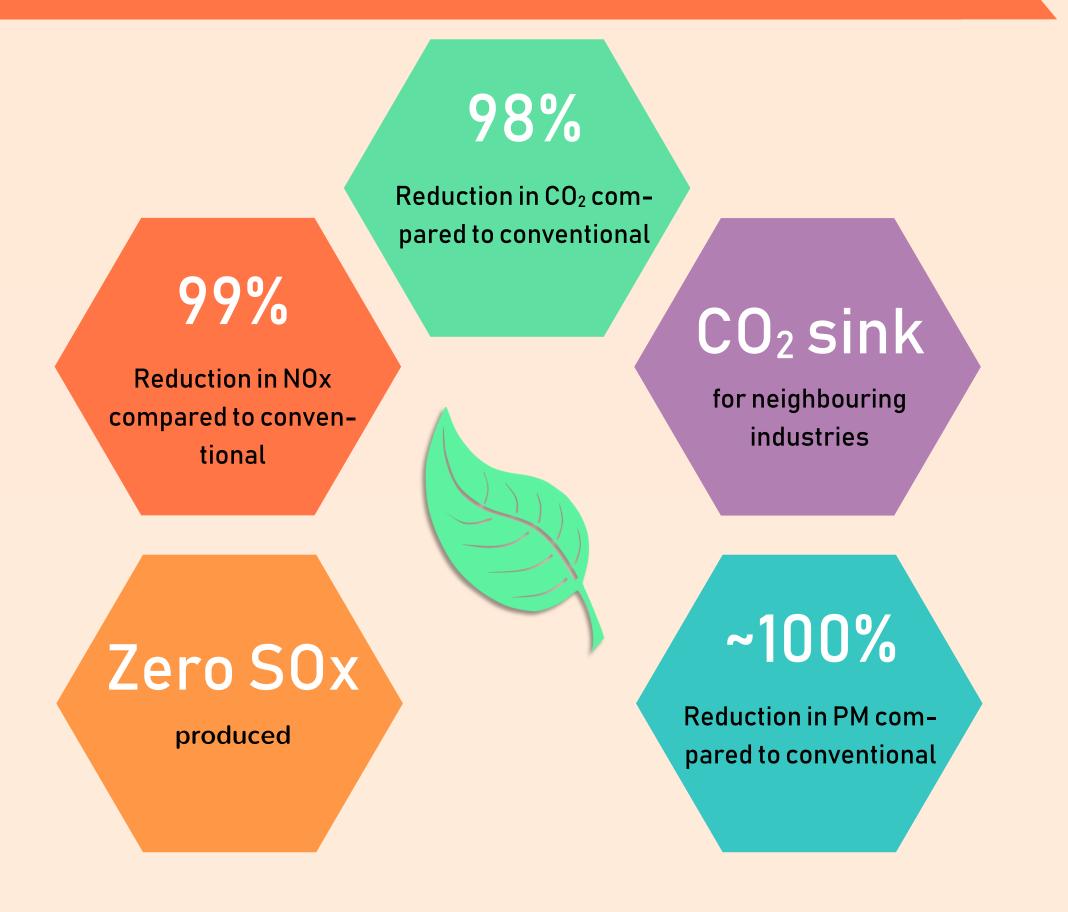
Solvents

Mass Balance

Glycerol 78,912 tonnes/year

Adipic Acid

Environmental



Bioprocessing

29 bioreactors operate in parallel to continuously ferment 5.5 tonnes of adipate per hour

Separation

Rotary vacuum filtration removes cells while adipate and impurities remain in solution

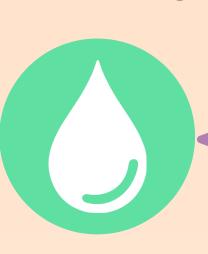
Concentration

Evaporation train increases the concentration of adipate from 60 g/L to 416 g/L

80 000 kg/h of water removed

Impurities are treated

in an aerated lagoon

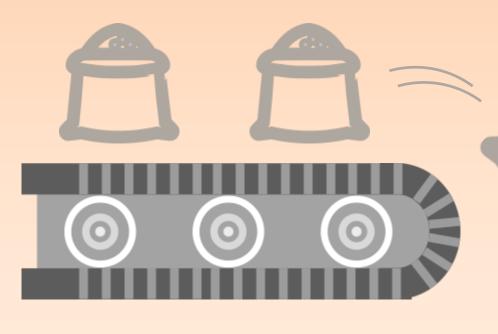


Crystallization

Product stream is cooled to precipitate adipic acid while impurities remain in solution



Adipic acid is dried and packaged to send to customers around the world



Water, glucose,

glycerol and other

trace elements are

Flocculant is added to

improve cell removal

E. coli cells are incinerated

to recover energy

CO₂ is added to raise

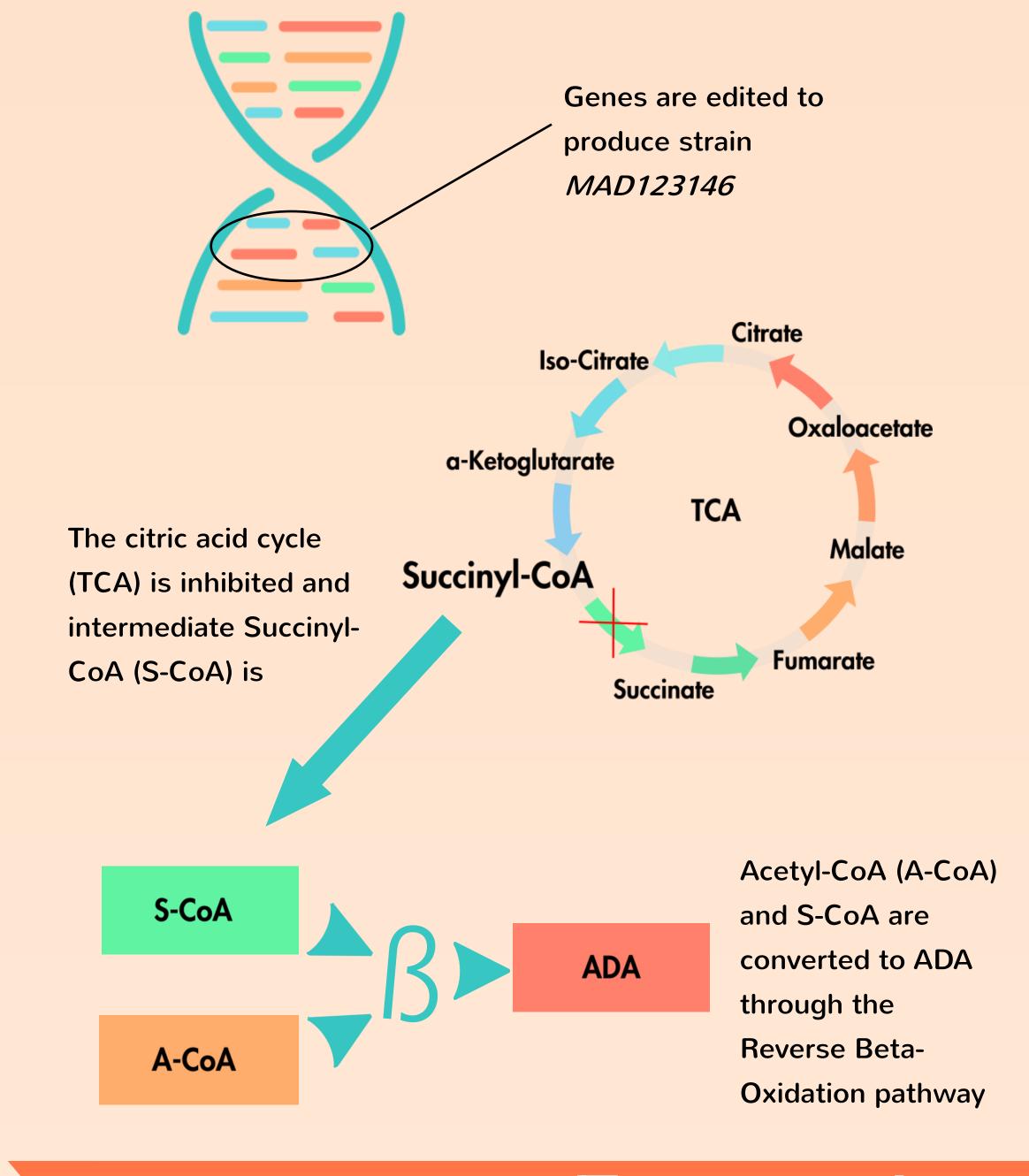
adipate to the desired

pH to protonate

adipic acid form

ΔΗ

Technology



Economics



