SOLAR EVAPORATION FOR URINE SEPARATION

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Overview

- Background
- Project Description
- Procedure
- Results
- Conclusion
- Acknowledgements
Background
Project Description

\[(\text{NH}_2)_2\text{CO} + \text{H}_2\text{O} \rightarrow \text{CO}_2 + 2\text{NH}_3\]

Research Question

• How does the evaporation of synthetic fresh urine compare to hydrolyzed urine?
• How does acid addition impact the nutrient recovery of fresh and hydrolyzed urine?
Procedure

Set-Up for Experiments:
• Mass Balance on Fresh and Hydrolyzed after Evaporation
• Analyze composition of remaining solids to examine the change after heating and evaporating the water from the urine.

Analytical tool:
• Total Organic Carbon Analysis (Total Nitrogen)
Results: Fresh Urine vs. Hydrolyzed Urine

Solid Weight Loss (g)

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<th>Fresh</th>
<th>Hydrolyzed</th>
<th>FO Treated</th>
<th>Fresh Acid Addition</th>
<th>Hydrolyzed Acid Addition</th>
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% Weight Loss (g)

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</table>
Results: Fresh Urine vs. Hydrolyzed Urine

% Difference

Non-Acid

Acid Addition
Results: Affect of Acid Addition

% Difference

Fresh Urine

Hydrolyzed Urine
Conclusion

- There was significant differences between hydrolyzed urine and fresh urine nutrient recovery.
- Acid addition increases the rate of evaporation of nutrients in fresh urine.

Future Directions...
Acknowledgements

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Questions?