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Exploring the potential of rice wash to promote germination in Eggplant (*Solanum melongena)*

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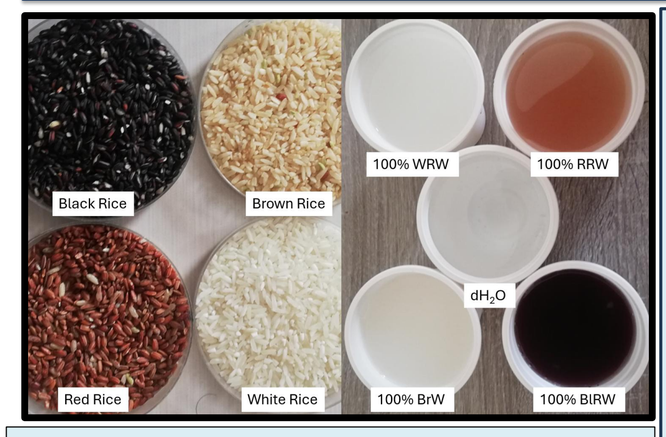
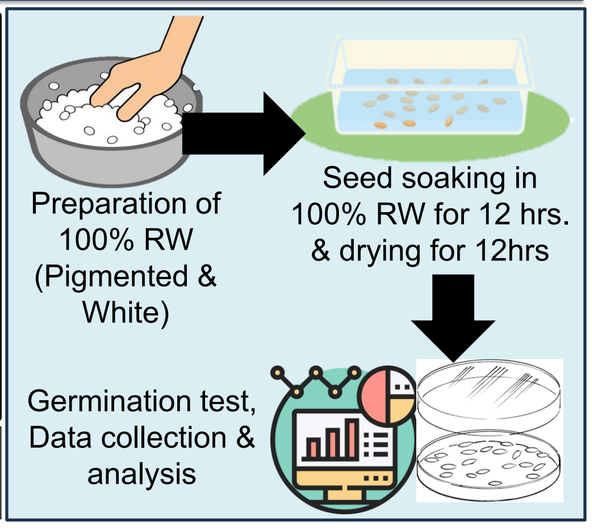
INTRODUCTION & AIM

- **Seed priming** is a controlled hydration technique that activates pre-germinative metabolism without radicle emergence, resulting in faster, more uniform germination, improved seedling vigor, and better early plant performance.
- **Rice wash (RW, hugas-bigas)** is a low-cost, locally available input widely used by Filipino farmers to enhance plant growth, but its effectiveness in seed priming and dormancy breaking particularly for eggplant has not yet been scientifically validated.
- **This study evaluates rice wash as a seed-priming agent for eggplant**, measuring germination rate, days to germination, and seed vigor across different rice types and concentrations to support sustainable, affordable vegetable production.

METHOD



Pigmented rice and rice wash used in the study (100 g Rice: 330 mL distilled Water)



RESULTS & DISCUSSION

RW Priming Enhances Early Germination in Eggplant Seeds

Rice type	% Germination at 1DAS
White	4.16 ± 0.37
Black	5.83 ± 0.84
Red	2.5 ± 0.42
Brown	0.00
Control	0.00

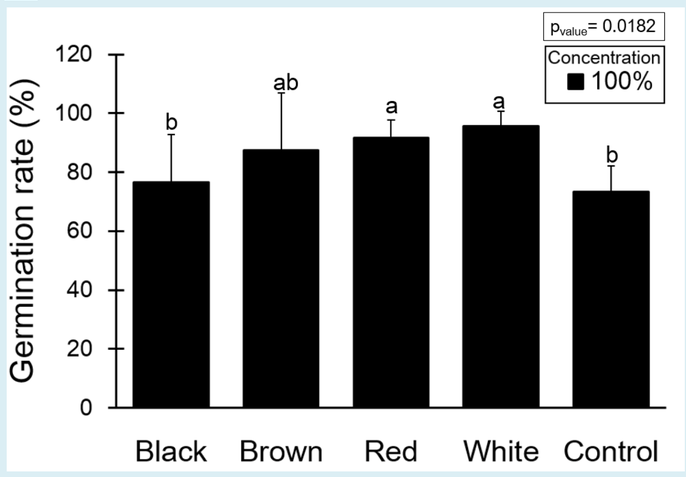
- **Eggplant seeds soaked in RW** showed **early germination at 1 DAS,** while **control** showed **none**, indicating a positive priming effect.
- **Black and White rice wash produced highest early germination**, followed by red rice wash.
- This **supports findings that seed priming accelerates metabolic activation & enzyme activity which leads to faster germination (Rhaman, 2025)**

Seedlings from RW primed seeds are heavier compared to the control.

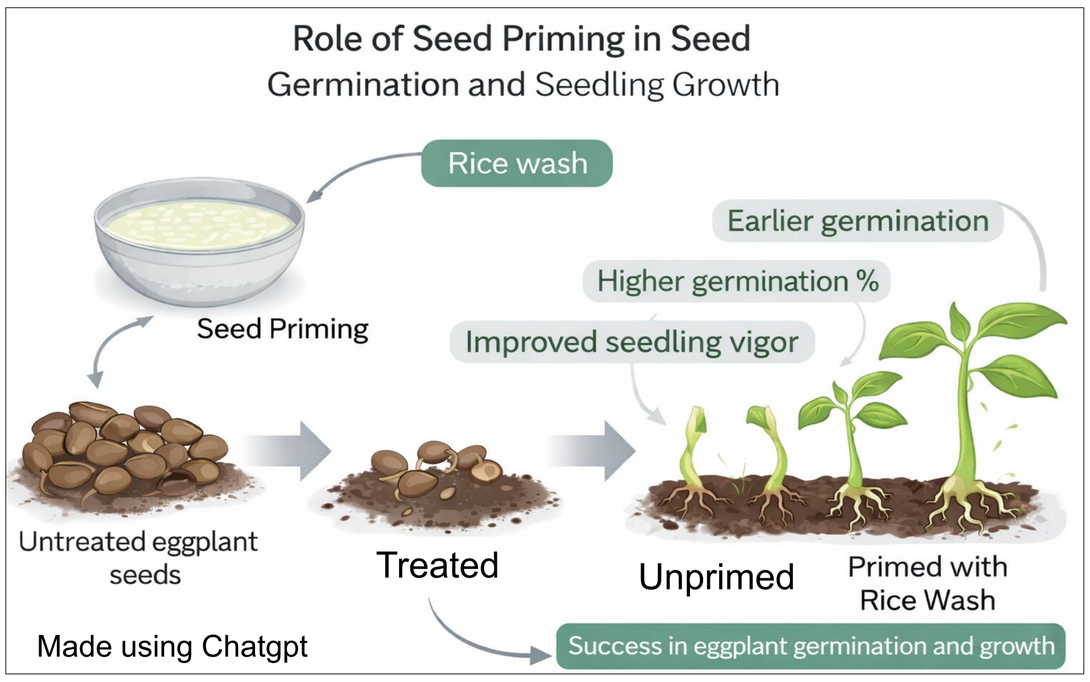
Rice type	Seedling dry weight (mg)
White	4.793
Black	6.304
Red	13.122
Brown	13.914
Control	2.101

- **Seedlings** from seeds primed with **Brown and red RW had heaviest seedlings**.
- Black RW priming **moderately improved** dry weight of seedlings.
- **Seeds from the control** had the **lowest dry weight**, confirming the **positive effect of rice wash treatments on seedling biomass**
- **High nutritional content** and the **presence of phytohormones** may have **promoted cell division** and **elongation** which enhanced growth of plants treated with RW compared to the control.

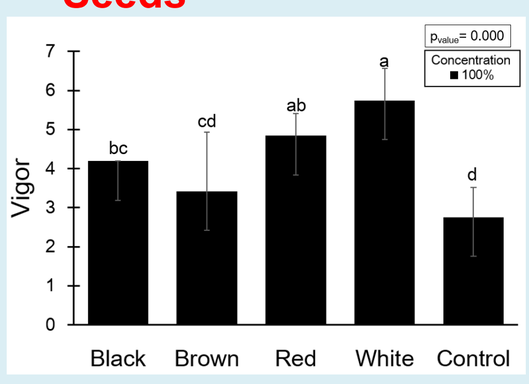
RW priming boosts eggplant seed germination.



- **RW treatments significantly improved germination compared to the control (p = 0.0182).**
- **White and red RW produced the highest germination rates**, followed by brown rice.
- **Black RW showed moderate improvement**, while the **control had the lowest germination.**
- **Pigmented and white RW** have **high polyphenol** and **anthocyanin** content (Leandro, 2009).
- **Pigmented and white RW contain high levels of polyphenols and anthocyanins** (Leandro, 2009), which **enhances seed germination by providing antioxidant protection, reducing oxidative stress, and supporting early seedling development** (Gunathunga et al., 2024).



RW priming enhances uniformity of germination of Eggplant Seeds



- **Seeds soaked in White RW yielded the highest seed vigor**, significantly outperforming other treatments.
- **Red and black RW priming enhanced vigor** compared to control.
- Control showed lowest vigor, confirming **strong positive effects of rice wash priming** (p = 0.000).
- RW, with its **higher nutrient content than water, enhances seed germination vigor** and **early seedling growth** (Abba et al., 2021).

CONCLUSION

- **Eggplant seeds soaked** in **White, Black, Red, and Brown RW** had **higher germinability** and **uniform germination** and **heavier seedling biomass**.
- This indicates that RW especially White, Black, Red, and Brown RW are **potential priming agents** that **promote early** and **uniform germination** of eggplant seeds.

Acknowledgments

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Affiliations

FUTURE WORK & REFERENCES

- Optimize RW concentration & priming duration.
- Test effects on different eggplant varieties.
- Evaluate impacts on seedling vigor, growth, & yield under field conditions.