

Lactic acid bacteria from Nigerian traditional fermented foods screened for the production of selected B-vitamins in beverages

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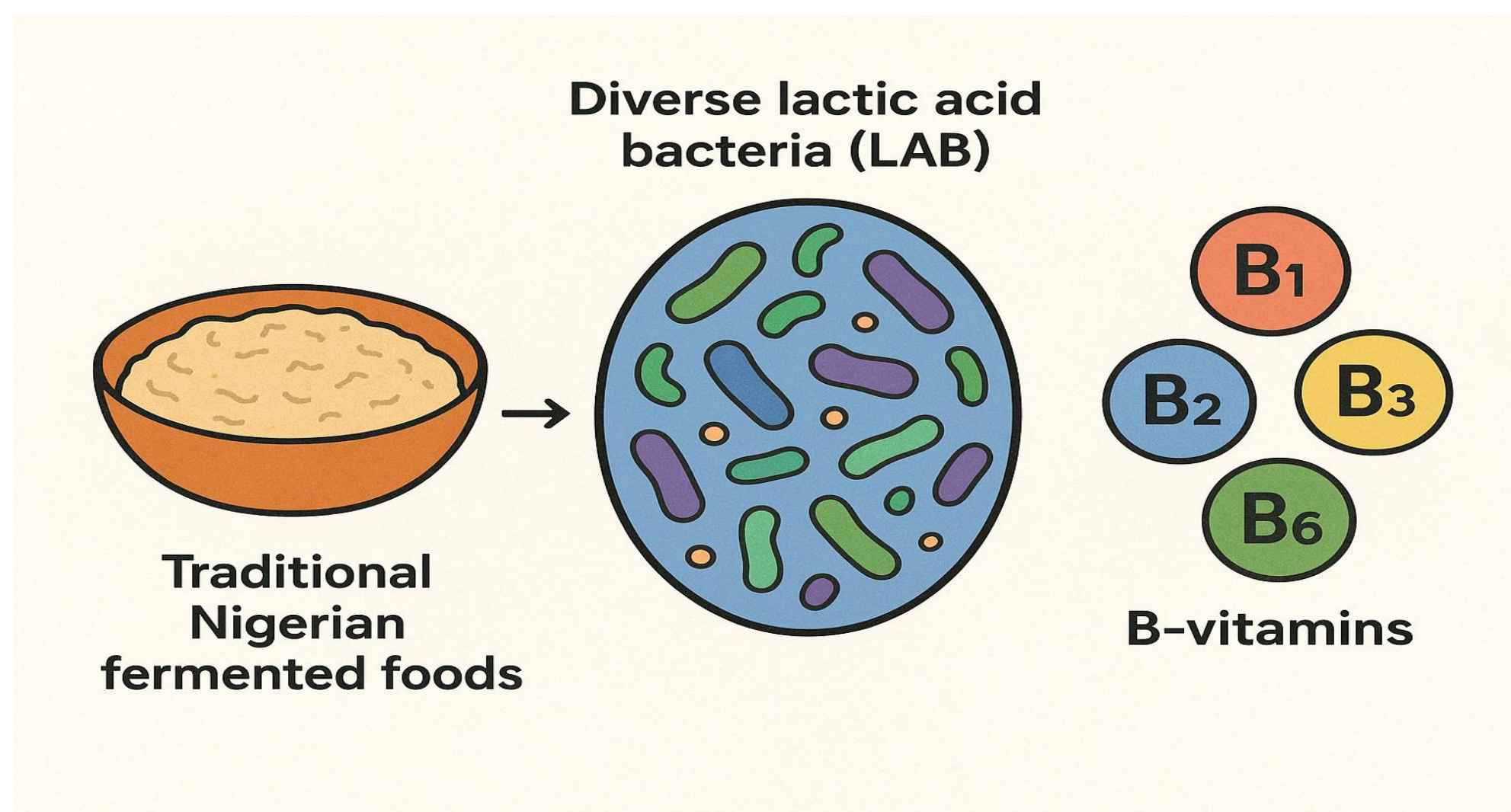
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INTRODUCTION & AIM



This study aimed to isolate, screen, and apply LAB strains for riboflavin and cobalamin enrichment in fermented cow milk

METHOD

Sample Collection and Isolation: 107 LAB were isolated from Nigeria traditional fermented foods.

B-Vitamin Screening: Spectrophotometrically (Li et al., 2017). Riboflavin production was screened using the chemically defined riboflavin-free medium (CDRFM). Russo et al. (2021)

Molecular Characterization: GenBank (accession numbers OQ835356–OQ835379).

Quantitative Vitamin Analysis: Riboflavin; via fluorescence in 96-well plates. Cobalamin; HPLC (Hamzehlou et al., 2018).

Application in Fermented Milk: Riboflavin and cobalamin-producing LAB strains with probiotic and technological characteristics were inoculated into sterilized cow milk



RESULTS & DISCUSSION

98 riboflavin-producing LAB

24 showed strong growth in CDRFM. (+++)

16 survived roseoflavin stress

14 showed positive color change in CDRFM.

7 isolates overproduced riboflavin.

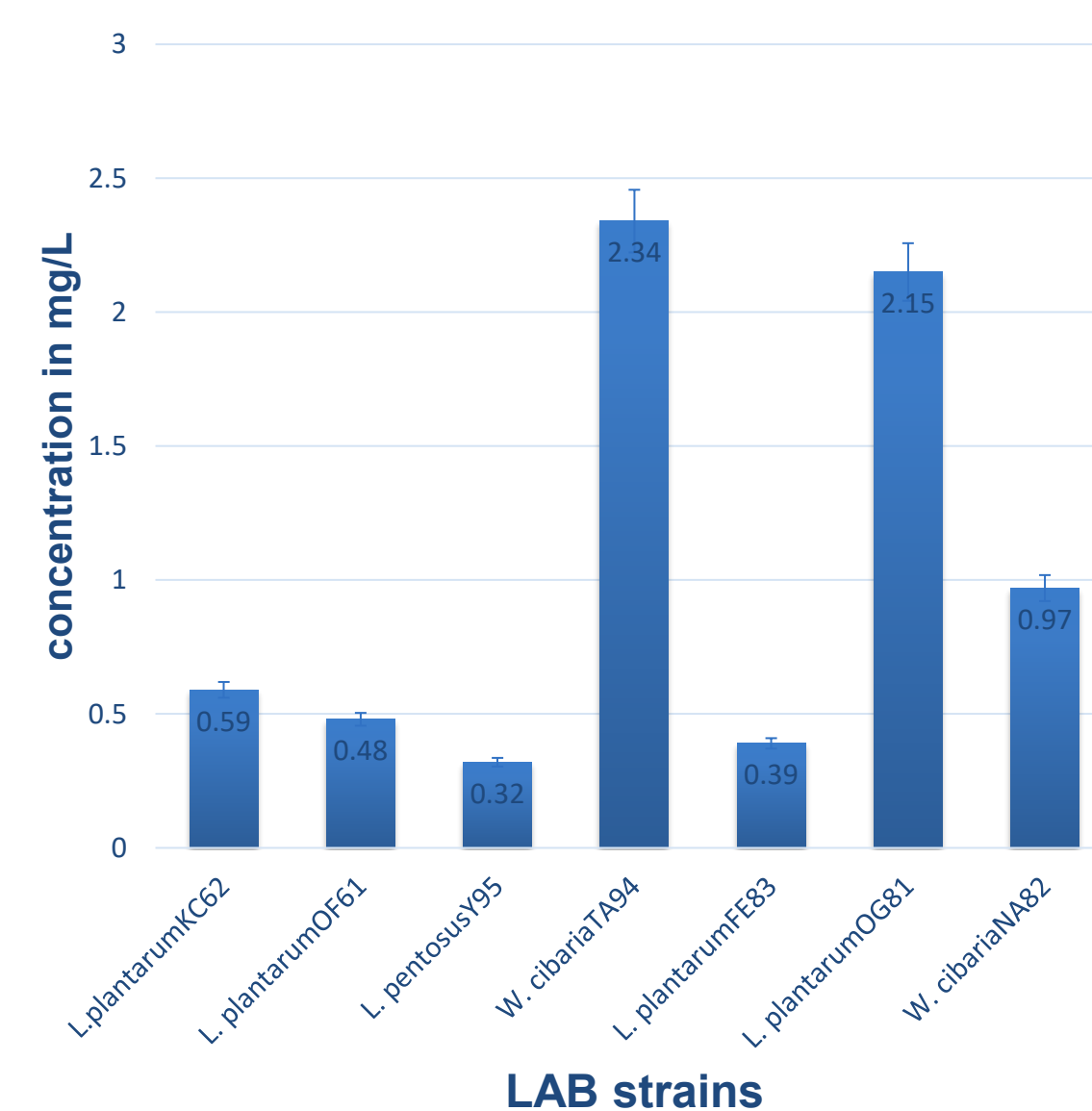


Figure 1. Riboflavin Overproducing Isolates

107 LAB isolates: **50** showed potential to produce cobalamin(B12); **13** produced cobalamin with highest concentration by *L. plantarum* KC62 ($4.02 \pm 1.16 \mu\text{g/L}$). *W. cibaria* species TA94 and NA82 also produces cobalamin.

Table 1. Vitamin Analysis of the Fermented Milk.

Parameter	LAB KC62	LAB TA94	KC62 and TA94	Control
Riboflavin (B ₂) mg/L	4.37	4.44	23.82	1.71
Cobalamin (B ₁₂) mg/L	6.88	7.85	42.24	2.00

CONCLUSION

L. plantarum KC62 and *W. cibaria* TA94 significantly increased riboflavin and cobalamin levels in fermented cow milk, with co-culture yielding the highest vitamin concentrations.

Let's ferment some innovation

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