



Bioenrichment Of *Iru*: A Fermented Vegetable Protein

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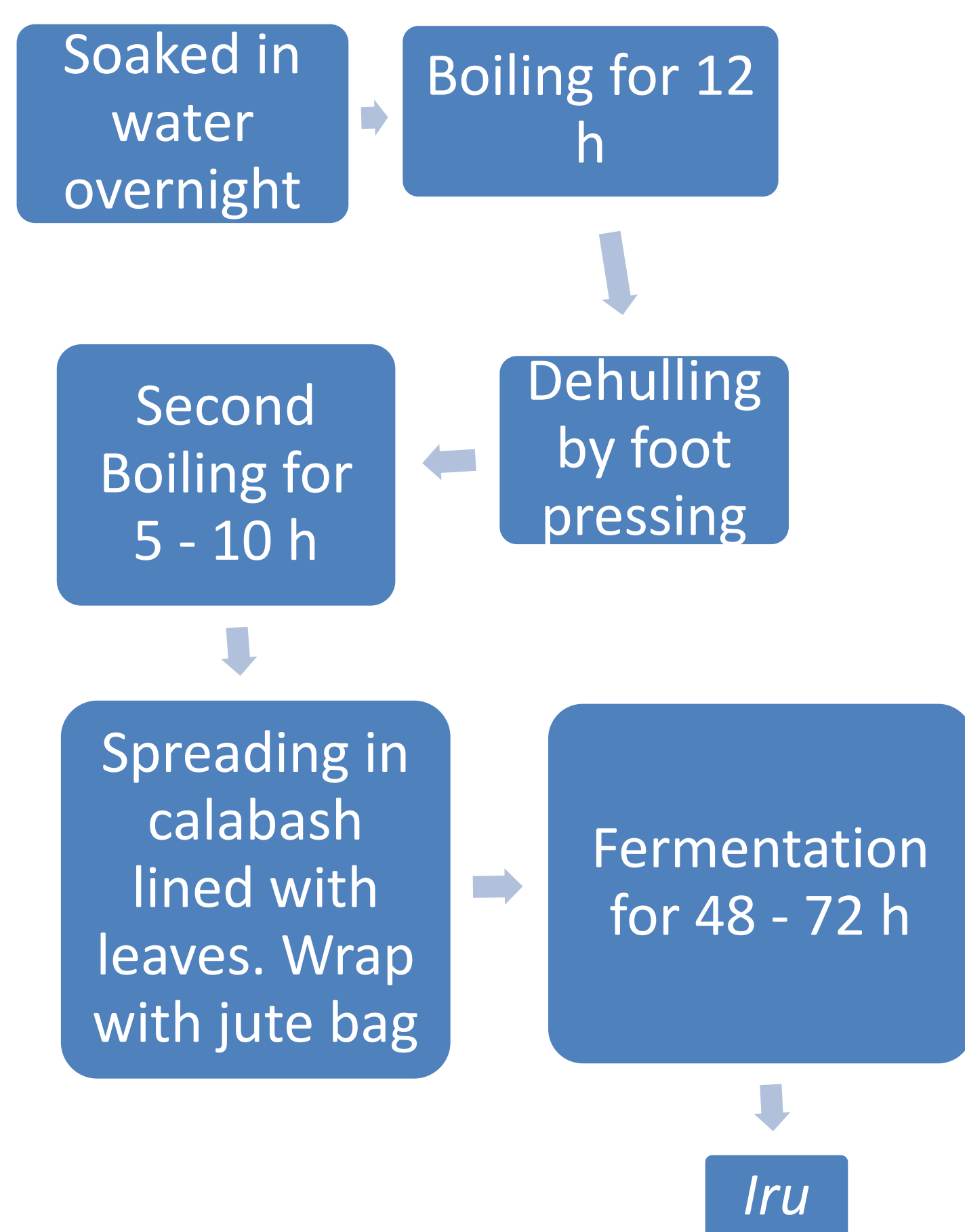
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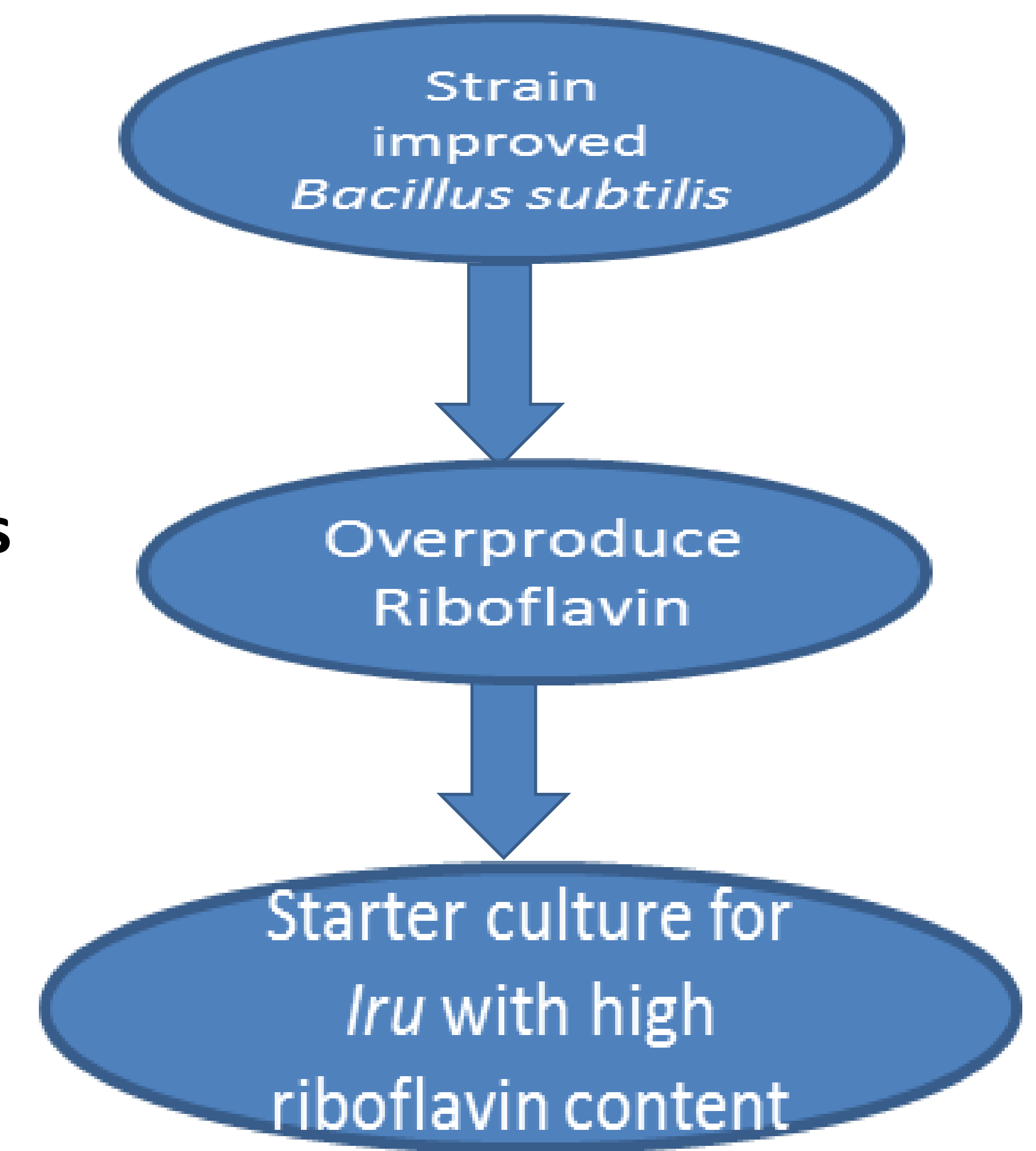
INTRODUCTION



African locust beans
(*Parkia biglobosa*)



- *Iru* is a flavour intensifier in soup and stew.
- Also serves as a substitute to meat in poor families diet.
- Riboflavin deficiency symptoms is common among the rural dwellers of Nigeria.
- Average daily consumption of *iru* by rural dwellers is 10g containing approx. 0.13mg of riboflavin
- RDA of riboflavin for adult is 1.3mg
- Hence, the need to bioenrich *iru* with riboflavin



APPROACH

Isolation Process

- *Iru* samples was obtained from 6 different states within the South-Western region of Nigeria.
- Bacteria were isolated and characterised using phenotypic approach.

Screening isolates for riboflavin production

- Riboflavin production of isolates was confirmed using microbiological and chemical assay.

RESULTS

118 *Bacillus* strains were isolated from samples of *iru*

All isolates produce riboflavin at varied concentration

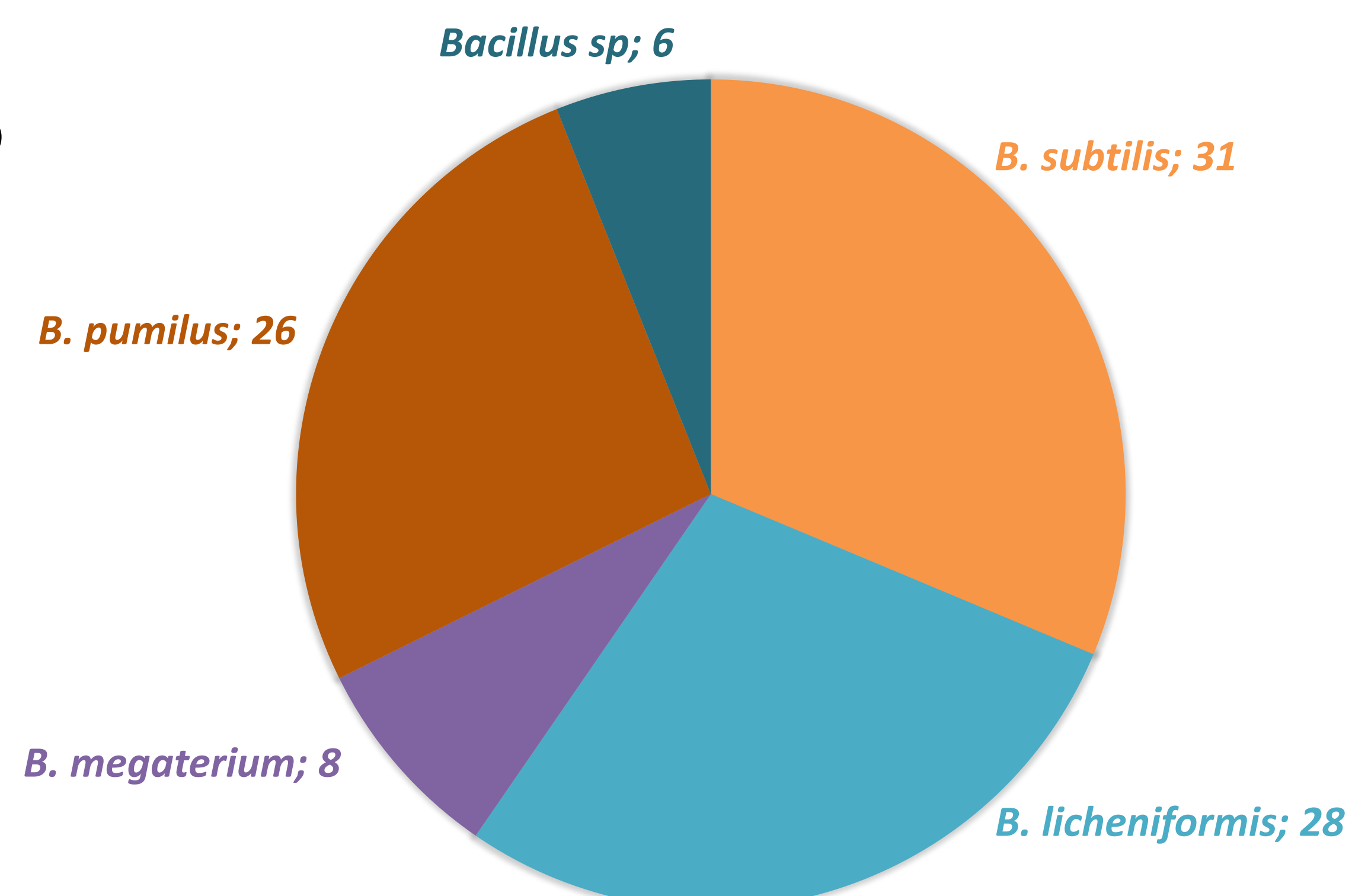


Fig. 1 Frequency of *Bacillus spp* obtained from *Iru*

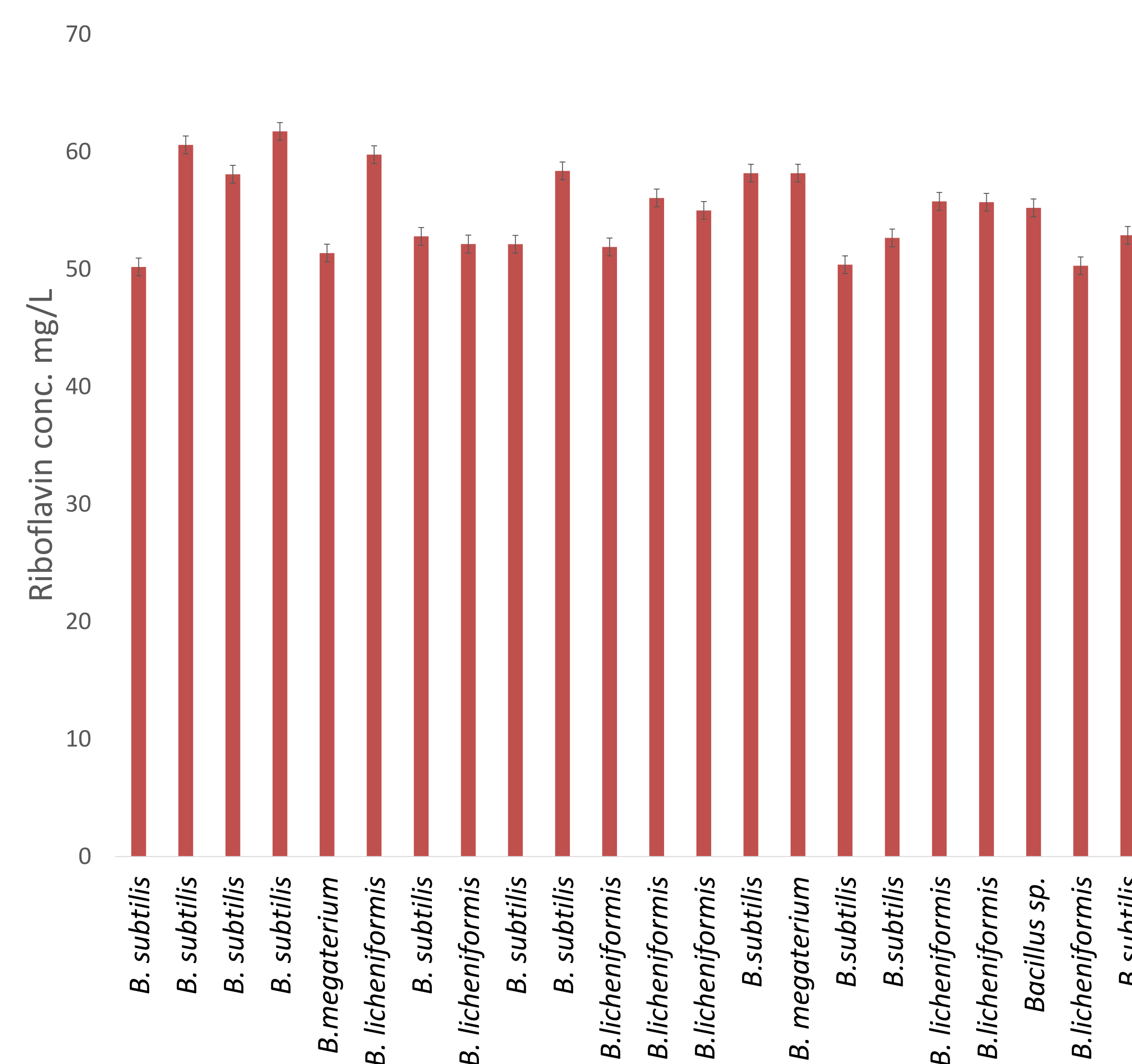


Fig. 2. Concentration of Riboflavin produced by 22 best strains

CONCLUSION

Out of the 118 *Bacillus* strains isolated from *iru*, 22 have the potential to produce riboflavin at high concentration. *Bacillus subtilis* IB4 produce the highest concentration of 61.73mg/L of riboflavin. The molecular characterisation, safety assessment and optimisation of riboflavin production is currently on-going. Optimisation of the production process and improving this strain of *B. subtilis* will contribute immensely to the process of bioenrichment biotechnology.

PERSPECTIVE

Molecular identification of the 22 strains using 16SrRna sequencing

Strain improvement by exposure to roseoflavin an analogue to riboflavin

Fermentation of African locust bean with improved strain

Compare the riboflavin production using wild type as control

Stability and safety assessment of the strain

Development of freeze dried riboflavin producer starter culture

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