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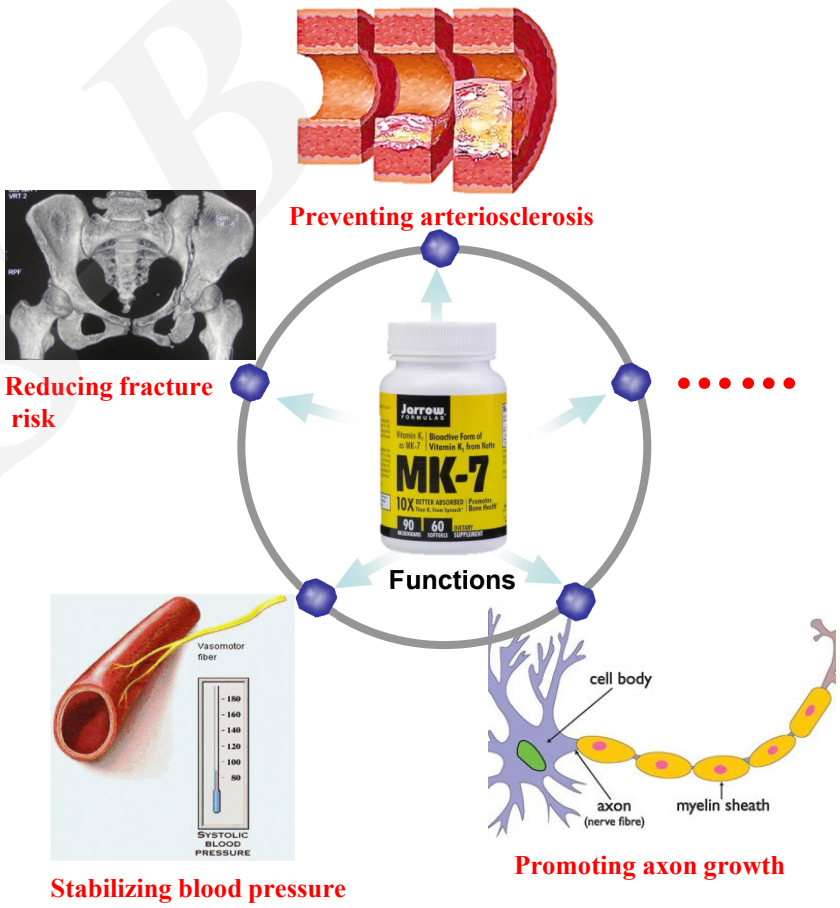
Menaquinone-7 production from maize meal hydrolysate by *Bacillus* isolates with diphenylamine and analogue resistance

Key words: **Menaquinone-7, *Bacillus amyloliquefaciens*, Analog resistance, Diphenylamine resistance, Maize meal hydrolysate**

Research Summary

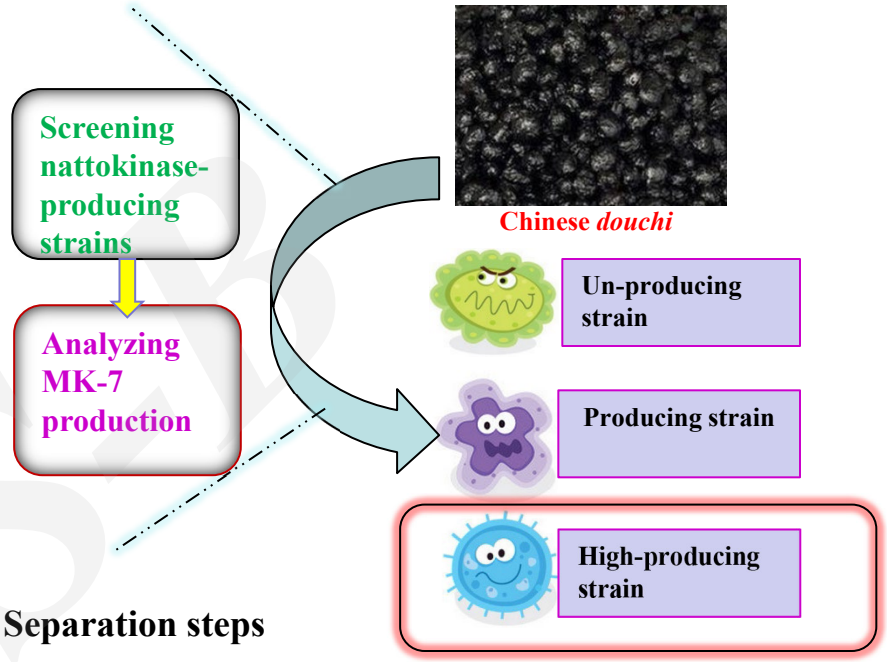
- MK-7 has unique physiological functions, whereas it should be added into daily diet to meet the requirement because of the low content in food products. This article focuses on creating MK-7 high-producing strains via screening and mutagenesis by an ARTP mutation breeding system, and investigates the effects of nitrogen source, prenyl alcohols and Mg^{2+} on MK-7 production with maize meal hydrolysate as substrate.



Innovation points

- A MK-7 producing strain was **isolated** from Chinese *douchi*, which can use maize meal hydrolysate as substrate, and designated as *Bacillus amyloliquefaciens* Y-2.

- A MK-7 high-producing strain with diphenylamine and analogue resistance was **created** by an ARTP mutation breeding system, and designated as *B. amyloliquefaciens* H.β.D.R.-5.



Innovation points

●**Emphasizing** that soymeal extract combined with yeast extract as nitrogen source is beneficial to MK-7 production and cell growth during growth on maize meal hydrolysate as substrate.

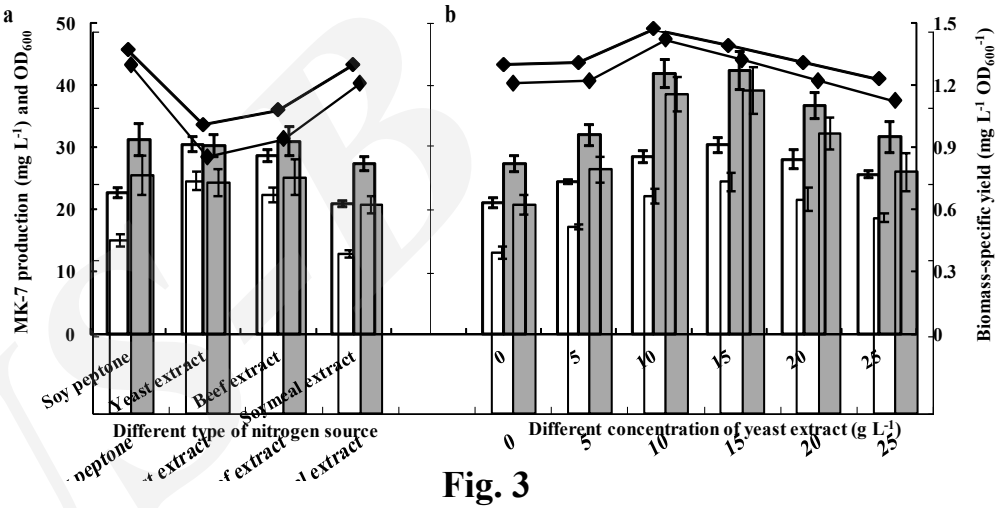


Fig. 3

●**Pointing out** that the proper concentration of isopentenol and $MgSO_4$ are beneficial to MK-7 production and cell growth during growth on maize meal hydrolysate as substrate, for example Table 2 and 3.

Table 2 | *Effects of different concentration of prenyl alcohols on the cell growth and MK-7 production by strain H.β.D.R.-5.*

Table 3 | *Effects of different concentration of $MgSO_4$ on the cell growth, sugar utilization and MK-7 production by the strain H.β.D.R.-5.*