

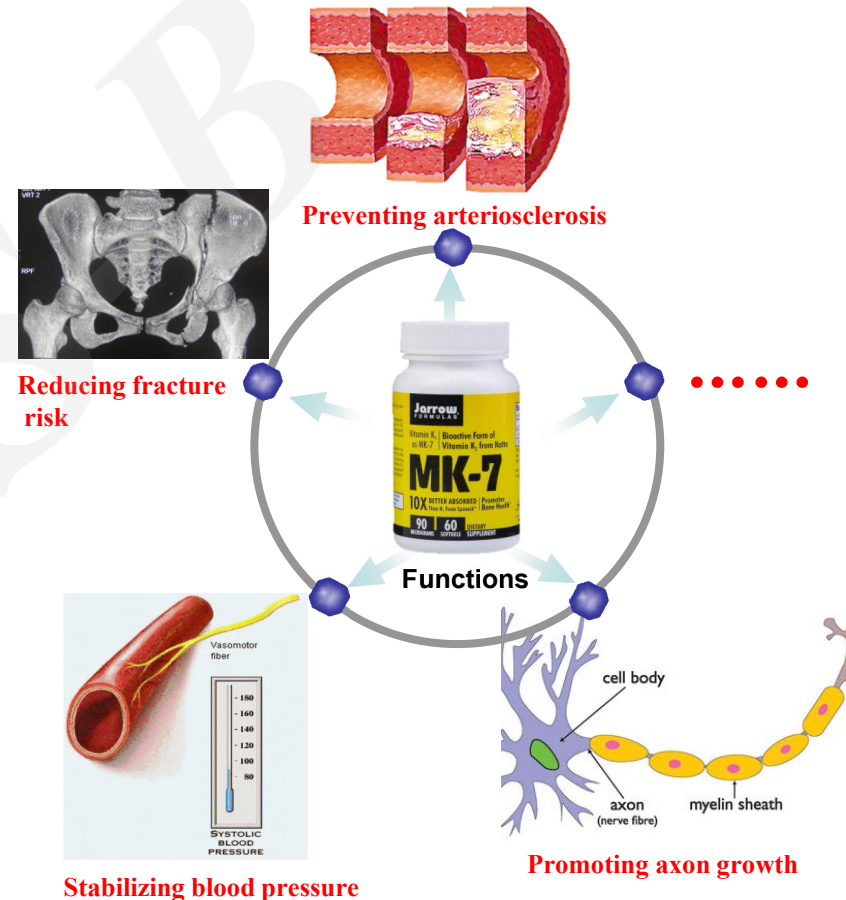
Cite this as: Jian-zhong XU, Wei-guo ZHANG, 2017. Menaquinone-7 production from maize meal hydrolysate by *Bacillus* isolates with diphenylamine and analogue resistance. *Journal of Zhejiang University-Science B (Biomedicine & Biotechnology)*, 18(6):462-473.
<http://dx.doi.org/10.1631/jzus.B1600127>

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

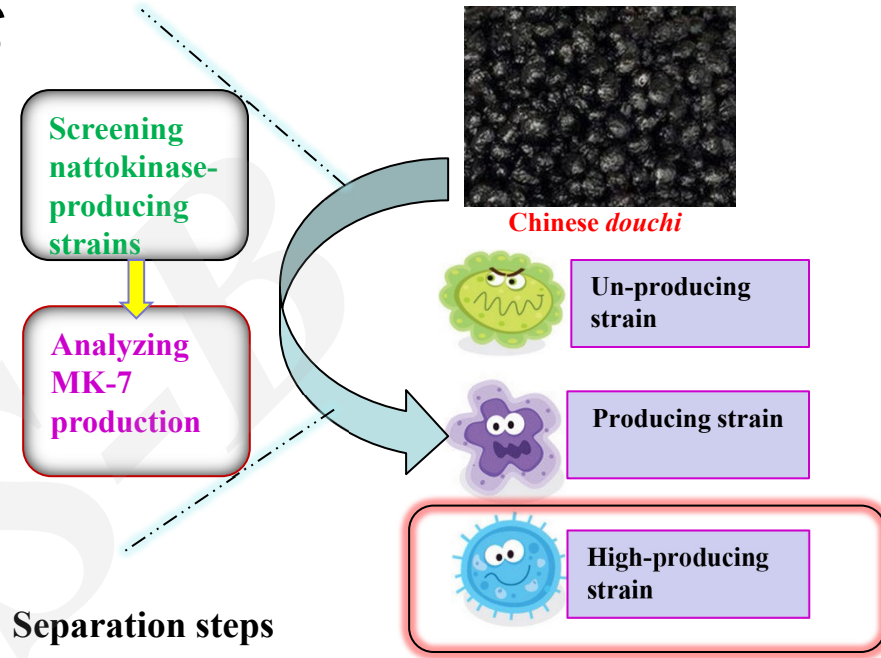
Research Summary

- 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.



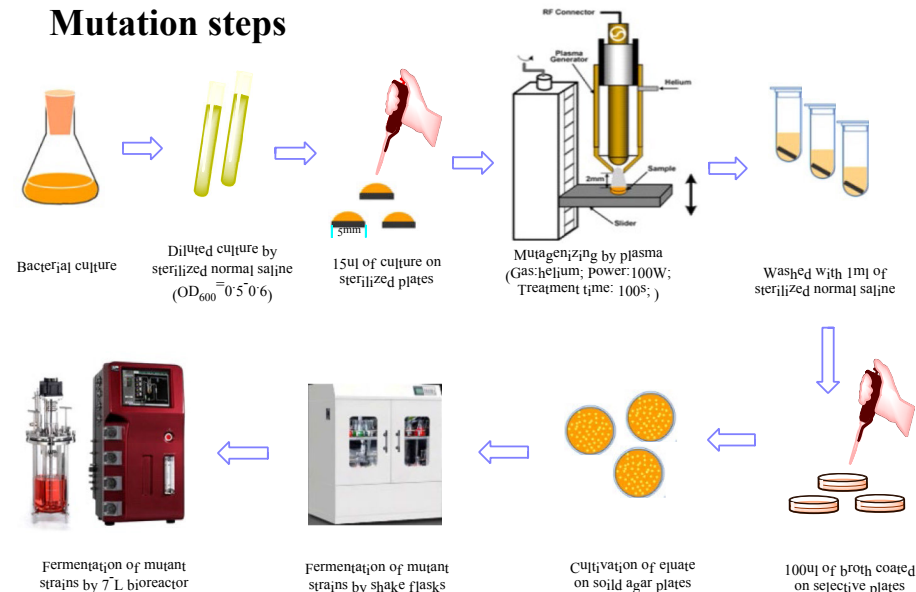
Innovation points

- 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.

Mutation steps



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.

● **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.*

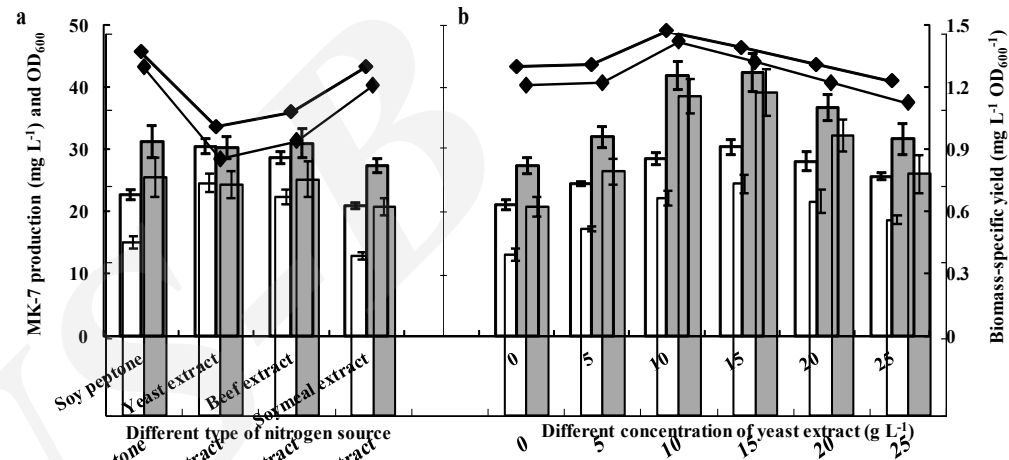


Fig. 3