#30: Strain and plastic composite support (PCS) selection for Vitamin K (Menaquinone-7) production in Biofilm Reactors

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Vitamin K, especially menaquinone-7 (MK-7), has received significant attention recently. MK-7 can be produced by microorganisms via fermentation process. However, the production levels are still low. Therefore, this study is undertaken to improve MK-7 fermentation by using biofilm reactors. In this phase of the study, strain selection by evaluating various Bacillus species such as *Bacillus subtilis* natto, *Bacillus licheniformis* and *Bacillus amyloliquifaciens* and plastic composite support (PCS) was investigated by using conventional medium (tryptic soy broth supplemented with 0.8% yeast extract) (TSB) and synthetic medium (SM) suggested by the literature, which is composed of 5% glycerol, 5% yeast extract, 18.9% soy peptone and 0.06% potassium phosphate dibasic. Furthermore, four different types of PCS (SF, SFY, SFYB, SFYR) were evaluated for selected strains in both media in terms of Vitamin K production and biofilm formation on PCS types. In the end, the combination of *Bacillus subtilis* natto NF1, SFY in TSB medium was selected as most potent for MK-7 production. MK-7 concentration was observed as high as 35.5 mg/L.