

ISOLATION OF BACTERIOPHAGE FROM STARTER CULTURES OF YOGHURT AND FORMULATION OF A PHAGE-RESISTANT STARTER CULTURE

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Yoghurt is the best known of all cultured-milk products and is very popular all over the world. To manufacture yoghurt, bacterial cultures known as starters are used. Bacteriophage attacks on milk fermenting bacteria during yoghurt production process causes loss of entire batches of yoghurt resulting in economic losses to the company. Culture bacteria (*Streptococcus thermophilus* and *Lactobacillus bulgaricus*) in starter cultures (Direct Vat Set-DVS) were isolated using Elikor medium. Bacteriophage was isolated from affected yoghurt using host bacteria grown on M-17 medium. The bacteriophage attacked *Lb.bulgaricus* but not *St.thermophilus*. After further confirmation of phage attack using the setting delay of yoghurt, starter cultures used in MILCO Company were

tested to find out resistant bacterial strains. Using bacteriophage resistant strain of *St.thermophilus* and *Lb.bulgaricus*, new starter culture was prepared and yoghurt samples were reset with different concentrations of culture bacteria at 1:1 ratio. Each yoghurt sample was tested for its setting time, rate of acidity increase and pH decrease to investigate the suitable concentration of culture bacteria to be used in the process. The optimum amount found was 1.5 ml from each of culture bacteria at 107 CFU/ml per 80 ml of milk.

Keywords: Elikor Medium, M-17 Medium, *Lactobacillus bulgaricus*, *Streptococcus thermophilus*