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THE EFFECTS OF DNA DEMETHYLATION AGENTS ON BACILLUS LEHENSIS G1

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INTRODUCTION: DNA demethylating agents have been used to induce the production of secondary metabolites which could not be produced by microorganisms in a normal laboratory culture. These agents cause demethylation in the microorganisms’ DNA thus expressing the “silent genes” which then produce new secondary metabolites.

PROBLEM STATEMENT: *Bacillus lehensis* G1 do not express any bioactive compounds under normal lab culture conditions. The culture conditions used are agitation of 200 rpm at 30⁰C for 24 hours. The broth used to culture is Hirokoshi’s broth.

RESULTS: Procaine hydrochloride, procainamide hydrochloride and hydralazine was used to induce the production of new compounds by Bacillus *lehensis* G1. The results shown significant production of secondary metabolites when *B. lehensis* was treated with hydralazine (P < 0.05)). In addition, *Bacillus lehensis* G1treated with procaine hydrochloride showed anti-microbial properties towards *MRSA, Pseudomonas aeruginosa* and *Stenotrophomonas maltophilia* compared with the wild type which was inactive. This finding was supported by the HPLC results which shown different metabolic profiles for each respective extracts.

CONCLUSION: DNA demethylating agents can induce expression of new secondary metabolites in *Bacillus lehensis* G1.