

INTRODUCTION

Rhodococcus erythropolis EK-1, isolated from oil-polluted soil samples, was previously shown to produce surfactants (surface_active substances, SAS) when grown on hydrophobic (hexadecane, liquid paraffins) or hydrophilic (glucose, ethanol) substrates [1]. In a sequence of metabolic reactions associated with formation of the key intermediates of constructive metabolism, a bottleneck may exist, i.e., a reaction with a lower rate, or one requiring high energy expenses or loss of the substrate carbon. Detection of the sites of metabolic limitation and development of approaches to their elimination may result in enhanced efficiency of biotechnological processes. We have previously demonstrated that acetate assimilation, the rate-limiting reaction catalyzed by acetyl-CoA synthetase, is the bottleneck of C2 metabolism in *Acinetobacter* sp. IMV B-7005, a producer of the polysaccharide ethapolan [2]. Conditions for cultivation of strain B-7005 were determined which made it possible to remove the limitation of C2 metabolism and to increase threefold the activity of acetyl_CoA synthetase, as well as to carry out ethapolan synthesis in nonbuffered medium with salt content decreased fourfold (to 2.95 g/l) [2].

The goal of the present work was investigation of *n*-hexadecane metabolism in *R. erythropolis* EK-1 in order to enhance surfactant production.

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