Nitrogen, Energy and Vitamin Nutrition of Rhizobium japonicum

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Abstract

The energy, nitrogen and vitamin nutrition of 36 strains of Rhizobium japonicum were investigated. Most of the strains utilized gluconate, glycerol, arabinose, glucose, mannose, mannitol, sorbitol, galactose and maltose. Pyruvate, succinate, ribose, ribitol, xylose, fructose and lactose were of limited use whereas acetate, propionate, lactate, malate, citrate and sucrose were uniformly inadequate as carbon or energy sources. All strains grew well with vitamin-free casein hydrolysate, and 6 could utilize ammonia as sole nitrogen source. Glutamate was utilized by 33 strains, histidine by 26, aspartate by 20 and proline by 26 strains. Other amino acids were not utilized by most strains. The organisms grew independently of any vitamins except biotin. Three of the strains were stimulated and growth of 4 was inhibited by biotin.

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