DEVELOPMENT OF A MODEL SYSTEM FOR IN VITRO TISSUE CULTURE OF SUGAR BEET PROTOPLASTS.

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The techniques for isolation and culture of sugar beet protoplasts from habituated cell suspensions were developed. The influence of different parameters viz genotype, growth phase of suspension culture, growth regulators, light and dark conditions, protoplast density, nitrogen source & osmotic pressure on plating efficiency of sugar beet protoplasts were investigated. All genotypes tested gave similar plating efficiencies (about 60%). The best growth regulator combination and concentrations to obtain highest plating efficiency were BAP 0.3, 2,4 D and NAA 0.1 mg/1. Keeping in light was more favourable than keeping in dark for a higher plating efficiency. Best protoplast density to culture sugar beet protoplasts was 6×10^4 protoplasts/ml. Media with low NH_4^+ Nitrogen like Schenk and Hildebrandt, V_{47}, Welander and K_3 were good to culture sugar beet protoplasts. MS with high NH_4^+ Nitrogen was a poor medium. Casamino acids were able to induce cell division in media without NH_4^+ Nitrogen. 0.3 M sucrose gave the best osmotic pressure for culturing sugar beet protoplasts.

Work carried out at V.U.B. Belgium.