The growth and biochemical responses on in vitro cultures of Oncidium taka orchid to electromagnetic field.

ABSTRACT

The effects of electromagnetic fields (EMF) strengths of 0, 10, 20, 40, 60, 80, 100 and 120 kV/m were investigated using protocormlike bodies (PLBs) of Oncidium taka orchid cultures under in vitro condition. Various biochemical and antioxidant system changes in PLBs were investigated. The results obtained reveal the potential of using 40 kV/m electric field strength stimulated production of higher photosynthetic pigments and increasing the growth of Oncidium taka PLBs. The results also showed the difficulties in obtaining and establishing a clear relationship between the influencing electric field and the protein, nitrogen content, peroxidase (POX) and glutamate oxaloacetate transaminase (GOT) activities. This suggests that electromagnetic field could be used as a tool to promote Oncidium taka orchid growth via photosynthesis once the right EMF strength and duration of exposure has been established through future studies.

Keyword: Orchid; Protocorm-like b