Abstract

Equisetum arvense preparations have long been used to promote bone healing. The aim of this work was to evaluate osteogenic and antibacterial effects of E. arvense hydromethanolic extracts. Dried aerial components of E. arvense were extracted using a mixture of methanol:water (1:1), for 26 days, yielding three extracts that were tested (10-1000 μg/ml) in human osteoblastic cells: E1, E2 and EM (a mixture of E1 and E2, 1:1). Cell cultures, performed on cell culture plates or over hydroxyapatite (HA) substrates, were assessed for osteoblastic markers. In addition, effects of the extracts on Staphylococcus aureus were addressed. Solution E1 caused increased viability/proliferation and ALP activity at 50-500 μg/ml, and deleterious effects at levels ≥1000 μg/ml. E2 inhibited cell proliferation at levels ≥500 μg/ml. EM presented a profile between those observed with E1 and E2. In addition, E1, E2 and EM, 10-1000 μg/ml, inhibited expansion of S. aureus. Furthermore, E1, tested in HA substrates colonized with osteoblastic cells, causing increase in cell population growth (10-100 μg/ml). E1 also exhibited antibacterial activity against S. aureus cultured over HA. Results showed that E. arvense extracts elicited inductive effects on human osteoblasts while inhibiting activity of S. aureus, suggesting a potentially interesting profile regarding bone regeneration strategies.