Pulsed electric field assisted process for extraction of bioactive compounds from custard apple (Annona squamosa) leaves

ABSTRACT

Impact of pulsed electric field (PEF) assisted process on preparation of custard apple leaf extract (CALE) using ethanol (70%, v/v) was studied. Different electric field strengths (2–6 kV/cm), pulse numbers (100–300 pulses) with specific energies (45–142 kJ/kg) for 2.5 to 5 min were implemented. Cell disintegration index was higher in CALE when PEF 6 kV/cm, 300 pulses, 142 kJ/kg for 5 min was applied. Extraction yield was higher (+5.2%) than the untreated counterpart (13.28%). Chlorophyll A and B contents were negligible in PEF pre-treated CALE. PEF improved radical scavenging activities assessed by DPPH, ABTS radical scavening activities and FRAP. The antibacterial properties of CALE against Staphylococcus aureus and Escherichia coli were highest. Purpureacin 2 and rutin were abundant in PEF pre-treated CALE. Therefore PEF was the potential aid in augmenting extraction yield and bioactivities of the extract from custard apple leaves.