Abstract: Introduction: Suspension culture of Scrophularia striata Boiss. (Scrophulariaceae) accumulate acteoside (an anticancer agent) and could therefore serve as an alternative source of this important phenylethanoid glycoside. The present work compared several acteoside extraction methods and optimized the best one by using single factor experiments.

Method: S. striata cell culture was established from in vitro propagated plantlets and subcultured in MS medium supplemented with 0.5 mg/L NAA + 2 mg/L BA every 15–17 days. Acteoside extraction methods were assayed and the best one was optimized by single factor experiments, studying the effect of ethanol and methanol concentrations, extraction time, shaking and sonication time. Also, a high performance liquid chromatographic method was established for the determination of acteoside in the samples. The extracts were analyzed on a C18 column using a mixture of CH3OH - 0.4% aqueous HAc as the mobile phase with UV detection at 333 nm.

Results: Cell culture accumulated enough acteoside to be analyzed by HPLC. The results showed that acteoside can be extracted more efficiently with 90% methanol than with distilled water or methanol. Extraction time, shaking and sonication time were not effective for extracting acteoside. Therefore, S. striata were extracted with 90% methanol.

Conclusions: The optimized method based on 90% methanol extraction combined with HPLC quantification was able to determine small amounts of acteoside in S. striata cell culture, showing that this system could constitute a possible alternative source of acteoside to wild plant.

KEYWORDS: Cell culture; extraction; HPLC; Scrophularia striata; acteoside

Presentation: Poster