

OR-40**ISOLATION, CHARACTERIZATION, AND ASSESSMENT OF CYTOTOXICITY OF ISOFLAVONES DERIVED FROM KUDZU ROOT AND SOY MOLASSES**

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Abstract. *Pueraria lobata* (PL) and dietary soy are rejuvenating folk remedies due to their broad pharmaceutical activities. Despite the immense attempts using chemotherapeutic or radiotherapeutic interventions, there are still difficulties to develop novel remedies to treat solid pediatric tumors e.g., glioblastoma multiforme (GBM) and sarcomas, such as osteosarcoma (OS) and rhabdomyosarcoma (RMS).¹ Isoflavones derived from PL and soy molasses (SM) are naturally occurring polyphenolic metabolites that were revealed for their antioxidant and anti-cancer therapeutic potentials. One-pot green extraction, and isolation of isoflavones were performed, then subsequently quantified and analyzed by HPLC-DAD-HRMS analytical method.² The fractionated extracts were assessed for their *in vitro* parameters e.g., antioxidant activity (AOA), total polyphenols content (TPC), total flavonoids content (TFC) and cytotoxic activities against GBM, A-172, ATCC CRL-1620, OS, ATCC CRL-1543 and RMS, ATCC CRL-136 cell lines. The HPLC-DAD analysis revealed the identification of daidzein, genistein, puerarin, formononetin and biochanin A in PL and SM with total isoflavones content 10.9 ± 0.006 and 14.8 ± 0.078 mg/100 g, respectively. The HPLC-HRMS satisfactorily isolated 10 sub-fractions of individual isoflavones. The fractionated components significantly showed cytotoxic effect (IC₅₀) against cancer cell lines in a dose-dependent manner. AOA, TPC and TFC were found relatively higher in KR than in SM, thereby significantly inhibiting the cancer cell proliferation.³ In conclusion, HPLC-DAD-HRMS was found a suitable analytical approach for the analysis of isoflavones which exhibited a potent anticancer potential against tumor cell lines thanks to their strong antioxidant activity.

References

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