An insight into the secondary metabolite profile of *Bergenia ligulata* rhizome showed Bergenin as the most potent antilithiatic agent

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The current lack in regimen of management of renal tissue calcification and the side-effects of synthesized allopathic medicine shifted the focus of scientists towards the traditional system of herbal therapy. *Bergenia ligulata* is referred by the ayurvedic system for treatment of kidney stone since decades but a scientific study indicating its metabolite responsible for antilithiatic activity is lacking. The aim of the study was to isolate the most potent antilithiatic metabolite from the rhizome of *B. ligulata*. In order to identify this, the crude extract of rhizome was fractionated using column chromatography guided by *in vitro* calcium oxalate (CaOx) crystal growth inhibitory activity. The active fraction was characterized via LC-MS, FTIR and NMR. Further, the *in vitro* antioxidant potential of purified molecule was also assessed. *In vivo* activity of the metabolite was evaluated in hyperoxaluric rats given 0.4% ethylene glycol (EG) and 1.0% ammonium chloride (NH$_4$Cl) for 9 days. Activity guided fractionation led to the isolation of most potent antilithiatic metabolite from the rhizome of *B. ligulata* and spectroscopic analysis revealed it as bergenin. At a dose of 10 mg/kg body weight of the treated rat, it protected against deleterious effects of lithogenic treatment. Bergenin maintained oxidant/antioxidant balance in hyperoxaluric rats, thus mechanistic insight of its antilithiatic activity was attributed to its antioxidant capability. The results of the present study provide significant evidence that bergenin is an active component present in the rhizome of *B. ligulata* for managing CaOx calculi ameliorating renal injury.

Biography
Deepika Aggarwal is currently pursuing her PhD at the Department of Biochemistry, Panjab University. The aim of her research work is to investigate the antilithiatic potential of *B. ligulata* rhizome with a plunge to isolate the active metabolites responsible for this activity. She has got two publications with one original research article in *Journal of Ethnopharmacology* and another being a review to her credit. She has presented her work at many national and international conferences.

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