

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/368453951>

# Evaluation of in vivo anti-nephrotoxic activity of the standardized aqueous root extract of *Vetiveria zizanioides* (L.) Nash of Sri Lankan origin

Conference Paper · August 2018

CITATIONS

0

READS

3

5 authors, including:



**Sachintha S Amarasiri**  
University of Ruhuna

43 PUBLICATIONS 112 CITATIONS

SEE PROFILE



**Anoja Priyadarshani Attanayake**  
University of Ruhuna

201 PUBLICATIONS 457 CITATIONS

SEE PROFILE



**Menuka Arawwawala**  
Industrial Technology Institute

139 PUBLICATIONS 1,084 CITATIONS

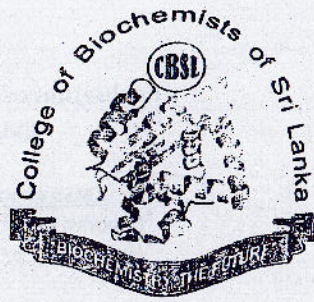
SEE PROFILE



**Lakmini Mudduwa**  
Faculty of Medicine, University of Ruhuna

143 PUBLICATIONS 683 CITATIONS

SEE PROFILE



# College of Biochemists of Sri Lanka

**1<sup>st</sup> Bi-annual Conference**

**Biochemists' Sustainability**

**26<sup>th</sup> October 2018**

**Hotel Galadari Colombo**

## Evaluation of *in vivo* Anti-nephrotoxic Activity of the Standardized Aqueous Root Extract of *Vetiveria zizanioides* (L.) Nash of Sri Lankan Origin

AMSS Amarasiri<sup>1</sup>, AP Attanayake<sup>2</sup>, LDAM Arawwawala<sup>3</sup>, KAPW Jayatilaka<sup>2</sup>, LKB Mudduwa<sup>4</sup>

<sup>1</sup>Department of Medical Laboratory Science, Faculty of Allied Health Sciences, University of Ruhuna,

<sup>2</sup>Department of Biochemistry, <sup>4</sup>Department of Pathology, Faculty of Medicine, University of Ruhuna

<sup>3</sup>Industrial Technology Institute, Baudhaloka Mawatha, Colombo 7

amssamarasiri@gmail.com

**Background:** *Vetiveria zizanioides* (L.) Nash (Family: Gramineae), commonly known as *Savandara* is a medicinal plant, widely used in the management of kidney diseases in Sri Lankan traditional medicine.

**Objective:** The aim of the present study was to standardize the root powder of *V. zizanioides* and to investigate the anti-nephrotoxic activity of the standardized aqueous root extract of *V. zizanioides in vivo*.

**Methods:** The chemical standardization and qualitative phytochemical analysis were conducted following standard protocols. The anti-nephrotoxic activity was investigated in adriamycin (20 mg/kg, ip) induced nephrotoxic male Wistar rats (n=6/group). The lyophilized powder of the aqueous refluxed (4h) root extract of *V. zizanioides* was administered at three selected doses; 25, 50 and 100 mg/kg to nephrotoxic rats. Fosinopril sodium (0.09 mg/kg) was used as the positive control. The anti-nephrotoxic activity was determined using serum concentrations of creatinine, albumin, total protein and concentration of urine total protein. Further, assessment of histopathological changes in the kidney tissues of H and E stained sections was carried out. Ethical clearance was granted from the Ethical Review Committee, Faculty of Medicine, University of Ruhuna (14.12.2015:3.1).

**Results and Discussion:** The root powder of *V. zizanioides* consisted of 7.5±0.4 % moisture, 30.2±0.9% total ash, 0.8±0.1 % water soluble ash and 26.2±0.9% acid insoluble ash. The preliminary phytochemical analysis of *V. zizanioides* extract revealed the presence of flavonoids, coumarins, tannins, saponin, phenolic compounds and terpenoids. The *V. zizanioides* extract at the 25, 50 and 100 mg/kg doses and fosinopril reduced the increase in serum creatinine concentration by 11%, 33%, 51% and 42% respectively (p<0.05). The serum concentration of albumin (3%, 13%, 20% and 16%) and total protein (9%, 20%, 32% and 12%) were increased significantly compared to the nephrotoxic control group (p<0.05). The reduction in the loss of urine total protein was found to be dose dependent with the selected doses of *V. zizanioides* in nephrotoxic rats. Histopathological assessment of H and E stained kidney sections showed an attenuation of nephrotoxic changes in the kidney tissues.

**Conclusions:** The results revealed that the standardized aqueous root extract of *V. zizanioides* possesses significant dose dependent anti-nephrotoxic activity in adriamycin induced nephrotoxic rats. The identified secondary metabolites might be attributed to the anti-nephrotoxic activity *in vivo*.

**Acknowledgements:** Financial assistance by NSF research grant (RG/2016/HS -03) and UGC special allocation for strengthening research (RU/PG- R/16/14)