

**Abstract Submission No. : 2602**

## **Beryllium Induced Acute Renal Injury: Reversal by Combination Therapy of Aloe vera with piperine**

**NAROTTAM DAS AGRAWAL**

Department of DEPARTMENT OF BIOCHEMISTRY, RAJKIYA MEDICAL COLLEGE, JALAUN (ORAI) U.P., India

**Objectives:** Beryllium is highly toxic to human and damages all the vital organs including kidney and alters all the physiological process. Thus, therapeutic efficacy of *Aloe vera* with piperine was investigated against beryllium induced acute renal injury in rats.

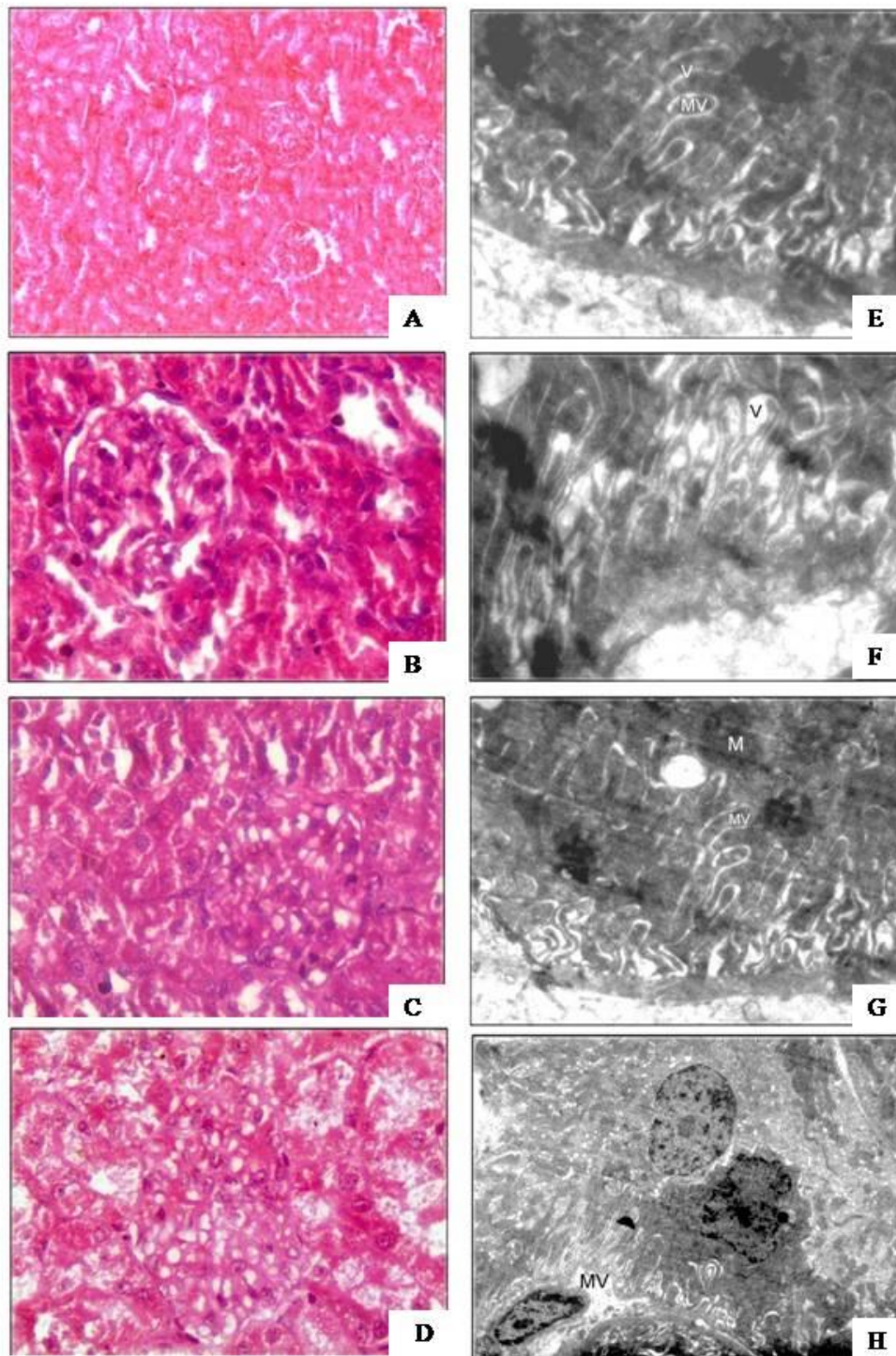
**Methods:** Be(NO<sub>3</sub>)<sub>2</sub> at doses of 1.0 mg/kg, i.p. once a day, daily for 21 days were administered in female *Wistar* albino rats followed by the treatment of *Aloe vera* (150 mg/kg, p.o) alone and in combination with piperine (2.5 mg/kg, p.o.), once a day, daily for 5 days. Histology and Electron microscopy were carried out for structural observations together with various biochemical alterations of kidney. Urea, uric acid, creatinine, ATPase and markers of oxidative stress were monitored.

**Results:** Histological section showed constriction of glomeruli, tubular hypertrophy, heavy vacuolation, degenerated glomeruli, and lymphocytic infiltrations with decreased lumen of uriniferous tubule whereas ultrastructure of kidney showed disrupted endothelium of filter membrane with more number of fenestrations between pedicles. Beryllium disturbed kidney function by elevation of urea, uric acid creatinine and decreased ATPase activity. Beryllium enhanced lipid peroxidation, depleted reduced glutathione and decreased antioxidant enzymatic activities of SOD, GR and GST, thus induced oxidative stress. Therapy with *Aloe vera* showed improvement, however combination of *Aloe vera* with piperine were found better over monotherapy against beryllium induced acute renal injury, and restored the structural alterations of kidney as observed by light microscopy and electron microscopy.

**Conclusions:** Therapy of *Aloe vera* was found to be effective in amelioration of beryllium induced acute renal injury however, combination therapy of *Aloe vera* with Piperine showed better in mitigation of beryllium induced oxidative stress and restored the kidney function normal as observed by light and electron microscopy as well as biochemical study.

LIGHT AND ELECTRONMICROSCOPY OF KIDNEY

**KSN** 2021  
FULLY VIRTUAL MEETING  
September 02 (Thu) - 05 (Sun)



**Light Microscopy (A-D, 100x, 400x): A- Normal Control, B- Be, C- Be + AV , D- Be + AV+ Pip**  
**Electron Microscopy (E-H): E- Normal Control (3500x), F- Be (3500x), G- Be + AV (2800x),**  
**H- Be + AV+ Pip (1100x)**