

## Effect of *Ricinus communis* L. on Some Biochemical Parameters in Wistar Rats Orally Exposed to Bonny Light Crude Oil

Jun CHEN <sup>1</sup> #, Zhe WANG <sup>2</sup> #, Jiani LV <sup>3</sup>, Yaqin CHEN <sup>4</sup> \*, Sourav BAIS <sup>5</sup> & Renu KUMARI <sup>5</sup>

<sup>1</sup> Department of pharmacy, Wuhan Third Hospital, Tongren Hospital of WuHan University,  
Wuhan Hubei, 430060, China

<sup>2</sup> Department of Pharmacy, Medical Supplies Center of PLA General Hospital,  
Beijing, 100071, China

<sup>3</sup> Department of Pediatrics, The First Affiliated Hospital of Zhejiang Chinese Medical University,  
Zhejiang Hospital of Traditional Chinese Medicine, Hangzhou Zhejiang, 310006, China

<sup>4</sup> Department of Pediatrics, The First Affiliated Hospital of Zhejiang Chinese Medical University, Zhejiang  
Hospital of Traditional Chinese Medicine, Hangzhou Zhejiang, 310006, China

<sup>5</sup> Institute of Pharmaceutical Sciences Sage University,  
Indore, India

**SUMMARY.** Crude oil is used in folklore medicine to treat various forms of diseases and in most cases in combination with medicinal plants. Studies have reported that *Ricinus communis* L. possess medicinal properties. The present study investigated the effect of different concentration of Bonny light crude oil and *Ricinus communis* on some biochemical parameters of Wistar rats. The rats were orally exposed to different concentrations of Bonny light crude oil and *Ricinus communis* leaf extract individually and in combination. After an exposure period of 21 days, the results revealed that Bonny light crude oil and the leaf extract at concentrations of 250 and 500 mg/kg b.wt can induce damage to the liver and kidney within 21 days of consecutive administration. This is shown in results of histological analysis gotten from the liver and kidney tissues. This study revealed that the induction of the leaf extract of *Ricinus communis*, and Bonny light crude oil at concentrations of 250 and 500 mg/kg b.wt for 21 days may affect the liver and kidney. Therefore, it is recommended that the use of this leaf extract and Bonny light crude oil at concentrations similar to the ones used in this study should be discontinued.

**RESUMEN.** El aceite crudo se utiliza en la medicina popular para tratar diversas formas de enfermedades y, en la mayoría de los casos, en combinación con plantas medicinales. Los estudios han informado que *Ricinus communis* L. posee propiedades medicinales. El presente estudio investigó el efecto de diferentes concentraciones de petróleo crudo ligero Bonny y *Ricinus communis* sobre algunos parámetros bioquímicos de ratas Wistar. Las ratas fueron expuestas por vía oral a diferentes concentraciones de aceite crudo ligero Bonny y extracto de hoja de *Ricinus communis* individualmente y en combinación. Después de un período de exposición de 21 días, los resultados revelaron que el aceite crudo ligero Bonny y el extracto de hoja en concentraciones de 250 y 500 mg/kg de peso corporal pueden inducir daño al hígado y al riñón dentro de los 21 días posteriores a la administración consecutiva. Esto se muestra en los resultados del análisis histológico obtenido de los tejidos del hígado y el riñón. Este estudio reveló que la inducción del extracto de hoja de *Ricinus communis* y aceite crudo ligero Bonny en concentraciones de 250 y 500 mg/kg de peso corporal durante 21 días puede afectar el hígado y el riñón. Por lo tanto, se recomienda suspender el uso de este extracto de hoja y aceite crudo ligero Bonny en concentraciones similares a las utilizadas en este estudio.

**KEY WORDS:** Bonny light crude oil, folklore medicine, hematological parameters, *Ricinus communis* L., Wistar rats

\* Author to whom correspondence should be addressed. E-mail: yuanting2021@sina.com

# Jun Chen and Zhe Wang are co-first authors, they contributed equally to this work