



## The Effects of (+)-Gossypol on $11\beta$ -HSD and the Concentration of Corticosterone and Dehydrocorticosterone in Mice Serum and Tissues

Xiangjun QIU <sup>1,2#</sup>, Wanshu LI <sup>1,3#</sup>, Junwei LI <sup>1</sup>, Mengmeng WANG <sup>1</sup>, Jia WANG <sup>1</sup>,  
Lianguo CHEN <sup>1</sup>, Wei SUN <sup>1</sup>, Likang ZHANG <sup>1</sup>, Congcong WEN <sup>1</sup>, Renshan GE <sup>1</sup> & Guoxin HU <sup>1\*</sup>

<sup>1</sup> School of Pharmacy, Wenzhou Medical College, Wenzhou 325035, China

<sup>2</sup> Medical College of Henan University of Science and Technology, Luoyang 47100, China

<sup>3</sup> Ningbo Municipal Hospital of Traditional Chinese Medicine, Ningbo 315012, China

**SUMMARY.**  $11\beta$ -hydroxysteroid dehydrogenase ( $11\beta$ -HSD) plays an important part in mediating glucocorticoid action, catalyzing the interconversion of corticosterone (B) and dehydrocorticosterone (A) in rodents. The aim of our study is to investigate the effects of (+)-gossypol (G+) on  $11\beta$ -HSD. Adult ICR mice were given B and B + (G+) by intraperitoneal injection. The activity of  $11\beta$ -HSD was evaluated by measuring the ratio of A and B, meanwhile the effects of (+)-gossypol on the conversion rate of B to A was determined with HPLC. Serum A/B levels of the B+(G+) group decreased by 2.42, 7.32, 17.85, 31.39, and 40.02 % compared to the B group at each measured time interval. A/B levels at 1 h for the B + (G+) group decreased by 43.78, 21.29 and 34.47% in liver, kidney and adrenal glands, respectively, in comparison to the B group. However, (+)-gossypol had no effect on brain and testis. (+)-Gossypol was an inhibitor of  $11\beta$ -HSD.

**KEY WORDS:** Corticosterone, Dehydrocorticosterone, (+)-Gossypol, HPLC,  $11\beta$ -hydroxysteroid Dehydrogenase.

\* Author to whom correspondence should be addressed. *E-mail:* wzhhgx@yahoo.com.cn. # These authors contributed equally to this work.