

5<sup>th</sup> International Conference and Exhibition on

# PHARMACOGNOSY, PHYTOCHEMISTRY & NATURAL PRODUCTS

July 24-25, 2017 Melbourne, Australia

## A Sino-African pharmacokinetic comparison of berberine: The contribution of the intestinal microbiota

Raphael N Aiolga

China Pharmaceutical University, China

Berberine is one of the world's most widely used natural products. It has gained recognition as a drug in many Asian and African countries and also as a dietary supplement in many other countries. However, pharmacokinetic (PK) comparisons of berberine in different racial/ethnic groups are lacking. Our study compared the PK differences of berberine in 20 healthy male Africans and Chinese and investigated the possible underlying mechanisms for the racial differences. The plasma levels of berberine after oral administration were monitored for 12 hours by liquid chromatography with mass spectrometry. The C<sub>max</sub> and AUC in the Africans were 2.67-fold and 2.0-fold higher than the Chinese, respectively. Microbial compositions by 16S rRNA pyro sequencing showed higher abundance of the genera *Prevotella*, *Bacteroides* and *Megamonas* (34.22, 13.88 and 10.68%, respectively) in the Chinese than the Africans (30.08, 9.43 and 0.48%, respectively). Scatter plot showed a strong negative correlation between the microbial abundance and the berberine AUC, especially for the genus *Prevotella* ( $r=-0.813$ ) and its species. To confirm the effects of micro biota on the PK of berberine, we compared the metabolic capacities of microbiota between the two races. A more extensive metabolism was observed in Chinese with 1.83-fold higher metabolites, possibly contributing to the lower AUC than the Africans. In conclusion, significant PK differences were observed between Africans and Chinese, which is partly attributable to variations in gut micro biota and its corresponding metabolic capacity. Our findings are of clinical significance in the design of individualized dosage regimen based on differential microbial compositions.

anammahime@gmail.com