

## Alleviate Hangover Effect of Roes Aqueous Extract

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*Abstract: Some ethnic folk doctor in Guizhou China use rose tea as an antidote of alcoholic intoxication. In order to research the alleviate hangover effect of roes, through the method of mouse righting reflex experiment, find out that roes aqueous extracts can alleviate hangover effectively. Rose is rich in polysaccharide, flavonoids and vitamins, which could promote liver metabolism, and those materials are potential alleviate hangover effective components.*

*Keywords: rose, ethnic folk medicine, alleviate hangover, mouse righting reflex.*

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### 1. INTRODUCTION

Guizhou province is located in southwestern China, subtropical monsoon climate, which rich in animal and plant resources and special ethnic cultural heritage [1]. Guizhou ethnic folk doctor usually use locally products as medicine [2], such as plants, animals and minerals [3]. Rose tea are used as an antidote of alcoholic intoxication in some part of Guizhou, but there's no other literature shows rose have the effect of alleviate hangover, which is worthwhile to study.

### 2. MATERIALS AND METHODS.

#### 2.1 Materials

Mouse: 12 weeks and 32 weeks Kunming mice weighing  $36g \pm 2g$ , half male and half female.

Liquor: 56°C Chinese wine (Luzhou Laojiao)

Roes: Guizhou honey rose.

#### 2.2 Methods

Roes aqueous extract (RAE): Weigh 10g dried rose, pure water extract 4h by Soxhlet extraction, Fixed capacity to 100ml, obtained 0.1g/ml RAE.

Antialcoholism drug control: King Drunk antialcoholism by Neptunus Group.

Righting reflex experiment: The experiment was after fasting for 12 hours.

Mice were randomly divided into 3 groups of 20 in each group.

Group A is RAE group, given RAE by gavage, dosage is 0.25ml/10g body weight.

Group B is blank control group, given pure water by gavage, dosage is 0.25ml/10g body weight.

Group C is Antialcoholism drug control group, King Drunk by gavage, dosage is 0.25ml/10g body weight.

After 30min of gavage, given liquor by gavage, dosage is 0.15ml/10g body weight.

After the alcohol gavage, place mice backs down on the laboratory bench. If the posture is maintained for more than 30 s, judge the righting reflex disappeared, which means that mice are drunk, otherwise mice are not drunk. [4-6]

The drunken tolerance time (DT time) is the time when the righting reflex disappears (RRD time).

Drunkenness duration time (DD time) is the time when the righting reflex disappears (RRD time) to the time righting reflex recovery (RRR time).

DT time=RRD time

DD time= RRR time – RRD time

### 3. RESULT

Table 1 shows the result of mice righting reflex experiment it shows that compared with bank group, RAE group increased DT time obviously, the average DT time from 10.75min to 25.5 min. Antialcoholism drug group increased DT time also, but less effective than RAE group, which average DT time is 17.75. RAE group also decreased DD time obviously, the average DD time decreased from 367.5min in group B to 187.75 in Group A , meanwhile antialcoholism drug control group decreased average DD time from 367.5min to 216.75min. 4 of mice in blank control group dead, dead ratio is 20%. Group A and C have no dead mice. Meanwhile 3 and 5 mice in group A and C are not drunken, not drunken ratio are 15% and 25%.

Table 1. Mice righting reflex experiment result

Group	Mice	DT time(min)	DD time(min)	Dead	Not drunken
A (RAE group)	32 weeks male	23	139	0	1
	32 weeks female	14	160	0	1
	12 weeks male	35	242	0	0
	12 weeks female	30	210	0	1
B (Blank control group)	32 weeks male	5	302	1	0
	32 weeks female	4	245	2	0
	12 weeks male	14	408	0	0
	12 weeks female	20	515	1	0
C (Antialcoholism drug control group)	32 weeks male	16	137	0	1
	32 weeks female	8	181	0	2
	12 weeks male	25	223	0	1
	12 weeks female	22	326	0	1

Fig.1 shows the righting reflex experiment average time. The result demonstrated that RAE could increase average DT time , DT time shows the ability of resist drunk, the long time of DT time means the better ability of resist drunk. DD time show the ability of recovery from drunk.

The shorter DD time means the better ability of recovery from drunk. RAE increased 137.2% of DT time than blank group, while Antialcoholism drug control group increased 65.1%. RAE decreased 48.9% of DD time than blank group, while Antialcoholism drug control group decreased 41.0%. It is noteworthy the mortality rate of blank group is 20%, but RAE and Antialcoholism drug control group has no death, imply that RAE and King Drunk did protect mice's body from the damage of alcohol. 15% mice of RAE group and 25% mice of Antialcoholism drug control group are not drunken, imply that RAE and King Drunk did improved alcohol tolerance, but the pharmacological principles are not clear.

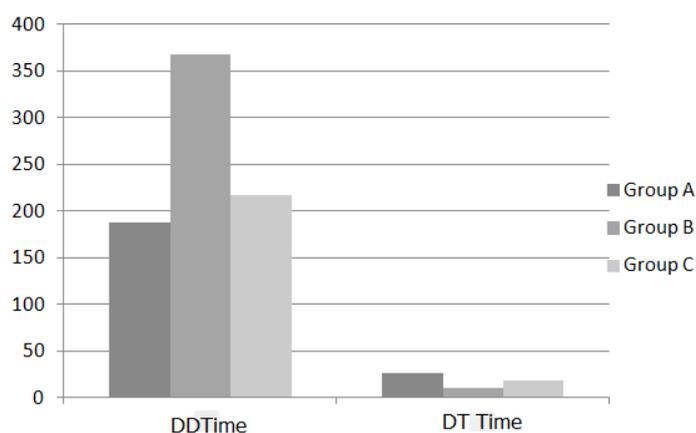


Fig.1 Righting reflex experiment average time

#### 4. DISCUSSION

The research confirmed the alleviate hangover effect of roses, the alleviate hangover effect of rose even better than some antialcoholism drugs. The main components of King Drunk is oyster powder, which rich in proteins, glycogen, amino acid and zinc, the composition is different from rose. Rose is rich in polysaccharide, flavonoids and vitamins, which could promote liver metabolism [7-9], and those materials is potential alleviate hangover effective components. The principle of alcoholism of rose are not clear yet, find out the active ingredient is helpful to developing new antialcoholism drugs.

This is the first time proved that rose have alleviate hangover effect, the idea comes from the ethnic folk doctor in Guizhou China, which effectively but has no scientific proof. Ethnic folk doctors in Guizhou claim that they can treat infertility, bruises, fracture even tumour. It is worthy and necessary to research on ethnic medicine further.

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#### REFERENCES

- [1] WANG Fen, CAO Jie, LI Fuguang SUN Xudong, GU Xiaoping, XIONG Wei, DUAN Rong. .Climate Characteristics of Rain Days and the Relationship between Rain Days and

- Total Amount of Precipitation in Guizhou [J]. *Plateau Meteorology*. 2015, 34 (01):145-154.
- [2] Lu Junliang, Research on knowledge management based ethic medical resource management system in Guizhou. [D]. Guizhou University of Finance and Economics
- [3] Xiong Mingning, Research on the market competitiveness of Guizhou pharmaceutical manufacturing enterprises [D]. Guizhou University
- [4] GAO Xueqing, ober-Up effect of Radix Puerariae and Flos Pueraria for Treating Acute Alcohol Poisoning Mice [J] *Journal of Food Science and Biotechnology*. 2012, 31 (06): 621-627
- [5] Z. W. Zhao , D. D. Pan , Z. Wu , Y. Y. Sun , Y. X. Guo , X. Q. Zeng. Antialcoholic liver activity of whey fermented by *Lactobacillus casei* isolated from koumiss. [J] *Journal of Dairy Science* Vol. 97 No. 7, 2014
- [6] Hou, Z., P. Qin, and G. Ren. 2010. Effect of anthocyanin-rich extract from black rice (*Oryza sativa* L. japonica) on chronically alcoholinduced liver damage in rats. [J]. *Agric. Food Chem.* 58:3191 - 3196.
- [7] David Costley , Heather Nesbitt, Nigel Ternan, James Dooley , Ying-Ying Huang , Michael R. Hamblin, Anthony P. McHale, John F. Callan. Sonodynamic inactivation of Gram-positive and Gram-negative bacteria using a Rose Bengal - antimicrobial peptide conjugate [J] *International Journal of Antimicrobial Agents*. 49(2017) 31 - 36
- [8] Wang Yutuan a preliminary study of rose polyphenols and polysaccharides [D]. Shandong University of Traditional Chinese Medicine.
- [9] Liu Yao. Extraction of rose polysaccharides and preparation of functional beverage [D]. Tianjin University of Science and Technology.