

## Effect of Rosa Roxburghii Tratt juice and its compound on some antisenescence items in experimental model of subacute senility in mice

### Abstracts

Subacute aging model in mice was made by using D-galactose. The observed animal groups were given Rosa Roxburghii Tratt juice and its compound by I.S. respectively. The result showed that the weight of the thymus glands and spleen in drugs-given animals increased remarkably.

**Key Words:** Rosa Roxburghii Tratt juice; Rosa Roxburghii Tratt compound; Aging; Mice; Urea nitrogen; Protein

One study report showed that Rosa Roxburghii Tratt could decrease lipofuscin of heart, liver and brain in experiment animals and improve all kinds of physiological and biochemical indices caused by senility. Subacute aging model mice induced by D-galactose was used in this experiment and the effects of Rosa Roxburghii Tratt juice and its compound on some antisenescence items were observed.

### Experimental materials

**Animal:** Kunming mice offered by animal experimental center of our college

**Drug:** Rosa Roxburghii Tratt juice offered by Le ye count Rosa Roxburghii Tratt food factory in Guangxi Province and diluted by seven times just before being used.

**Rosa Roxburghii Tratt compound:** made from Shou wu, other Chinese herb and diluted Rosa Roxburghii Tratt juice (diluted by seven times)

**D-galactose:** produced by Shang hai reagent factory two.

**Instruments:** 721 spectrometer, vortex oscillator.

### Methods and Results

48 Male mice, whose weight varied from 25.7-2.5 to 25.7+2.5 gram, were randomly divided into four groups. The mice in Group 1 were given saline solution (0.9%) 0.2ml/10g by I.S. per day. Mice in Group 2 to 4 were given 5% D-galactose 0.5ml by subcutaneous injection at neck back. The mice in Group 2, Group 3 and Group 4 were orally given 0.2ml/ 10g saline solution, Rosa Roxburghii Tratt juice and Rosa Roxburghii Tratt compound respectively. Group 1 was called normal control group. Group 2 called aging model group and Group 3 and 4 were called antisenescence groups. All mice had been fed for 36 days. The observed indices were as follows:

1. **Weight index of immune organ:** The thymus glands and the spleens of all mice were obtained and weighed when the experiment ended. The weight index of the organ was equal to the organ weight by body weight. (See Table 1). The size of thymus glands of mice in aging model group was  $\frac{1}{2}$  times as much as those of mice in normal control group. After Rosa Roxburghii Tratt juice and its compound were given to mice in Group 3 and 4 respectively, the size of the thymus glands of mice in both groups were as large as those in the Control Group. Spleens of mice in Group 2 to 4 enlarged.
2. **Serum BUN and serum total protein:** Blood samples were obtained from orbital vessel and serum samples were separated by centrifugation. The serum BUN and total protein were detected (see Table 2). Serum BUN decreased in Group 2 but maintained the normal level in Group 3 and 4. As to serum total protein, the only one change was that it decreased in Group 2.

**TABLE 1**

The weight indices of immune organs of mice (X ± SD)

Group	n	Weight of thymus	P value	Weight of Spleen	P value
		(g/100g body weight)		(g/100g body weight)	
1	10	0.134 ± 0.062		0.368 ± 0.121	
2	10	0.066 ± 0.044*	t=2.7036 p<0.01	0.451 ± 0.173*	t=1.1970 p>0.05
3	10	0.115 ± 0.035**	t=2.6739 P<0.01	0.494 ± 0.268**	t=0.4308 p>0.05
4	9	0.143 ± 0.105@	t=2.0976 P<0.05	0.772 ± 0.467@	t=1.9314 p>0.05

\*Compared with normal control group.  
\*\* Compared with Group 2.  
@ Compared with Group 2.

**TABLE 2**

Serum BUN and serum total protein contents (X ± SD)

Group	n	Serum BUN	P Value	Serum total protein
Normal Control Group	10	3,843 ± 0.66		80.74 ± 20.68
Aging Model Group	10	3.455 ± 0.60	p	70.80 ± 20.57
Rosa Roxburghii Tratt Antisenescence Group	10	4.043 ± 0.60*	p<0.05	80.87 ± 10.95
Compound Antisenescence Group	9	3.54 ± 0.73*	p>0.05	70.99 ± 10.95

\* Compared with aging model group.

**Discussion**

Immune function would decrease when a person became older and older according to immunology. Thymus became atrophied by the late life and the amount of T cells having immune function decreased, as the result, the old people were liable to have infectious diseases. Both Rosa Roxburghii Tratt and its

compound could apparently increase the weight of thymus of mice in Group 3 and 4 ( $p < 0.01$ ) and improve the function of T cells, therefore, we concluded that Rosa Roxburghii Tratt juice and its compound could improve body immune function.

Senility caused negative nitrogen balance and serum BUN decreased. After being treated by Rosa Roxburghii Tratt juice, mice in Group 3 and 4 had higher BUN than those in group 2 ( $p < 0.05$ ). This indicated that the Rosa Roxburghii Tratt had functions to delay senility.

Protein is an essential substance of life. Proliferation, inheritance and pathogenesis were related to protein. Serum total protein of mice in Group 3 and 4 were higher than that in Group 1 and 2, which may delay the degeneration caused by senility.

Rosa Roxburghii Tratt had high content vitamin C and various essential amino acids as well as trace elements such as copper, zinc and selenium. Many studies indicated that Rosa Roxburghii Tratt juice decreased the level of free radicals, improved the activity of SOD of human body cells and apparently decreased tissue lipofuscin. Other studies also showed that Rosa Roxburghii Tratt could prevent carcinoma because Rosa Roxburghii Tratt could effectively break off the synthesis of nitrosamine in human body or placenta. We found Rosa Roxburghii Tratt played a more important role in improvement of nutrition and activity of animals than Ren shen in one of our studies.

On the other hand, Rosa Roxburghii Tratt juice had no toxicity and any adverse function. On the bases mentioned above, we think Rosa Roxburghii Tratt juice was an antisenescence healthy beverage with excellent prospects.