Immunosuppressive Activity of the Ethanol Extract of *Sedum sarmentosum* and Its Fractions on Specific Antibody and Cellular Responses to Ovalbumin in Mice

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) C A , Z 310029, . . C
(: 86-571-869-71091; : 86-571-869-71091; - : @ . .)
) A & C , 225300, . . C

Sedum sarmentosum ( ) (A) . C A 0 14. B , ( ) 0.25, 0.5, 1.0 , A 0.1 7 28, . A (C A)-, ( )-, A- - . A- , 1, 2 . A , B , .

Introduction. *Sedum sarmentosum* BUNGE (C) - C , - , , , 1 . 2 5 , 6 9 , 10 , 11 , - 12 , 13 . 12 14 17 , 16 18 , 2 16 19 , 10 20 , 21 23 , 5 24 25 .

S. sarmentosum . *S. sarmentosum* , . - 26 . - . 2 *S. sarmentosum* - 7 , , 2 - ,

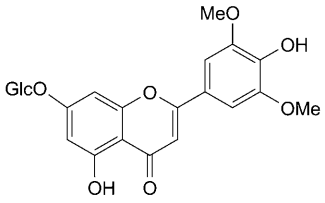
22 23 . ,
2 20 . , , - .

C 27 30 , *S. sarmentosum*
( )
. *S. sarmentosum*
2 5 , ,
- 2 .
, , ,
,

in vitro *in vivo*.

Results and Discussion.
, , 31 . , , -
-
,
32 33 . A ,
.
. .
, -

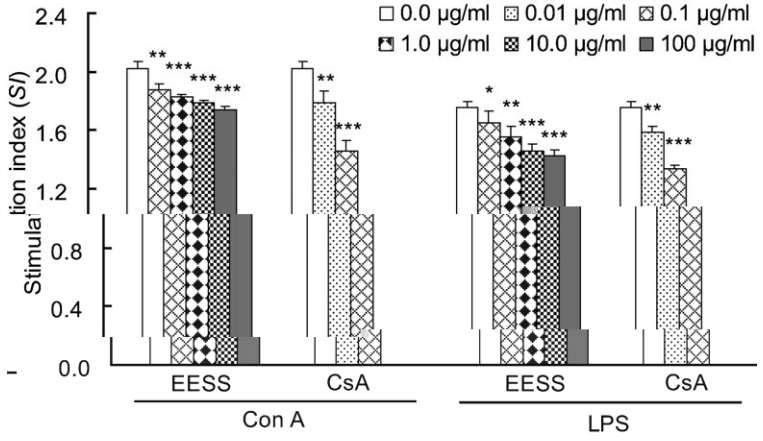
in vitro *in vivo*, -7-*O*-*β*-D-
(**1**), ,
B



Tricin-7-*O*-*β*-D-glucopyranoside (**1**)
(Glc = *β*-D-glucopyranosyl)

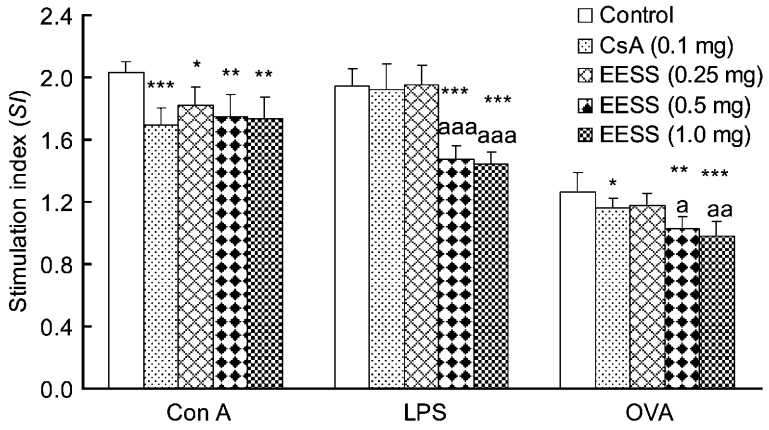
1. *Effect of EESS on Splenocyte Proliferation* *and* . A -
, - B- , ,
- , ,
. , ,

B- . - . C A - , - - B- . A *Fig. 1*, C A- - *in vitro* - . - A- A- *Fig. 2*. A , A (C A) C A- A- A- , - . C A- - A- ($p<0.05$ $p<0.01$). B- A 0.5 1.0 ($p<0.01$ $p<0.001$). , - A- C A- ($p<0.05$, $p<0.01$, $p<0.001$). - B- *in vitro* *in vivo*.

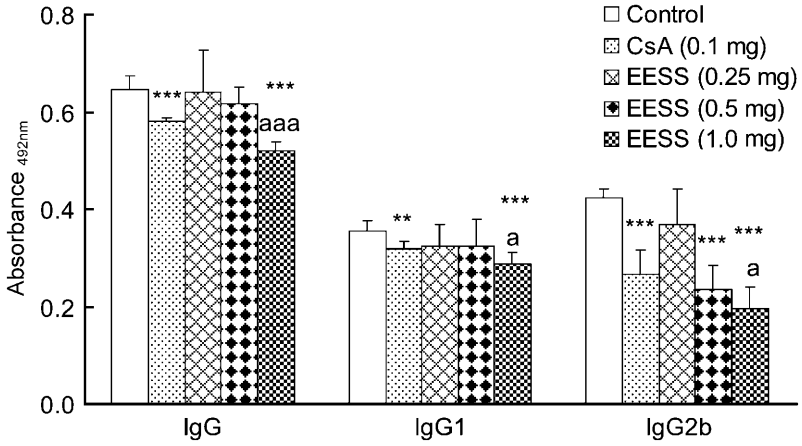


. 1. *Effect of the EtOH extract of* . ( ) *on mitogen-stimulated splenocyte proliferation* . (*SI*; *Exper. Part*). ± . . (n 4). 0 µ / *: $p<0.05$, **: $p<0.01$, ***: $p<0.001$. C A: A ( ).

2. *Effect of EESS on the OVA-Specific Serum Antibody Response in OVA-Immunized Mice.* A- A- A. A *Fig. 3*, A- 1 1.0 A ($p<0.001$). 2 0.5 1.0 ($p<0.001$). , A- , 1, 2 1.0 C A ($p<0.05$ $p<$



. 2. *Dose-dependent inhibitory effect of the EtOH extract of* . ( ) *on OVA- or mitogen-stimulated splenocyte proliferation in OVA-immunized mice.* C y A y 14, 0.25, 0.5, 1.0 , y A (C A,) 0.1 7 y 5 . y y (*SI*; *Exper. Part*). ± . . (*n* 5). A *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$; C A : $p < 0.05$, : $p < 0.01$, : $p < 0.001$.



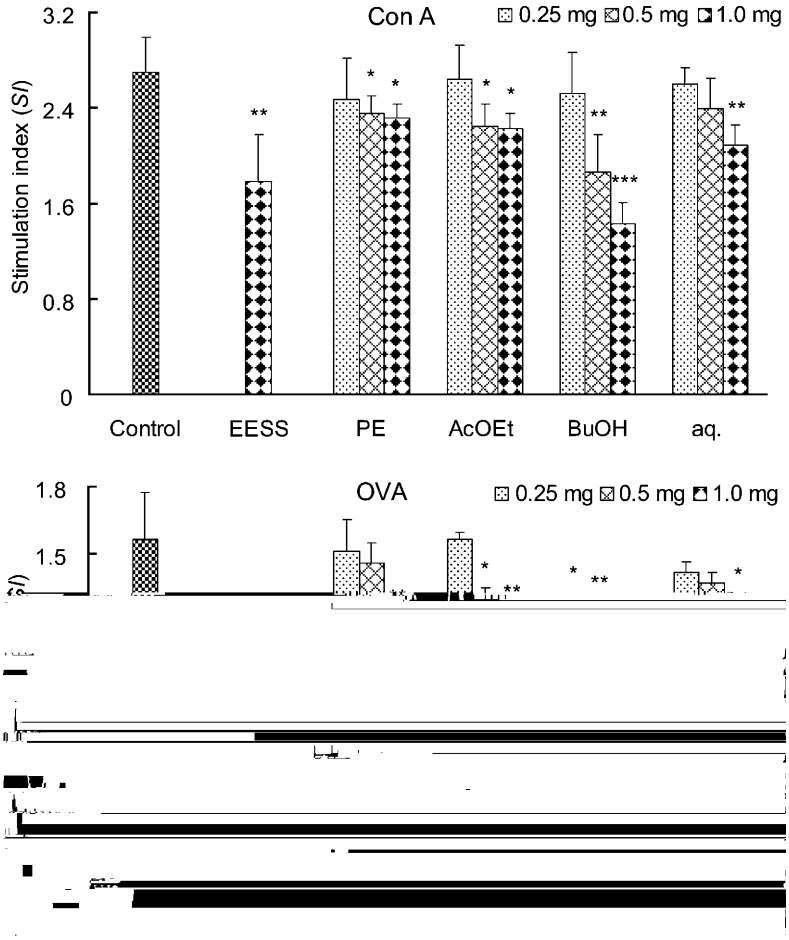
. 3. *Dose-dependent inhibitory effect of the EtOH extract of* . ( ) *on OVA-specific IgG, IgG1, and IgG2b antibodies in OVA-immunized mice.* C y A y 14, 0.25, 0.5, 1.0 , y A (C A,) 0.1 7 y 5 . A- , 1, 2 y A (*Exper. Part*). y y ± . . (*n* 5). A **: $p < 0.01$, ***: $p < 0.001$; C A : $p < 0.05$: $p < 0.001$.

0.001). C A.

1 2 - - , 1 2 , 2 1 34 . , 1- 2- , 1 2 . , 2 0.5 A ($p < 0.001$). , , 1 - . 1 2 . B 1 2 , - .

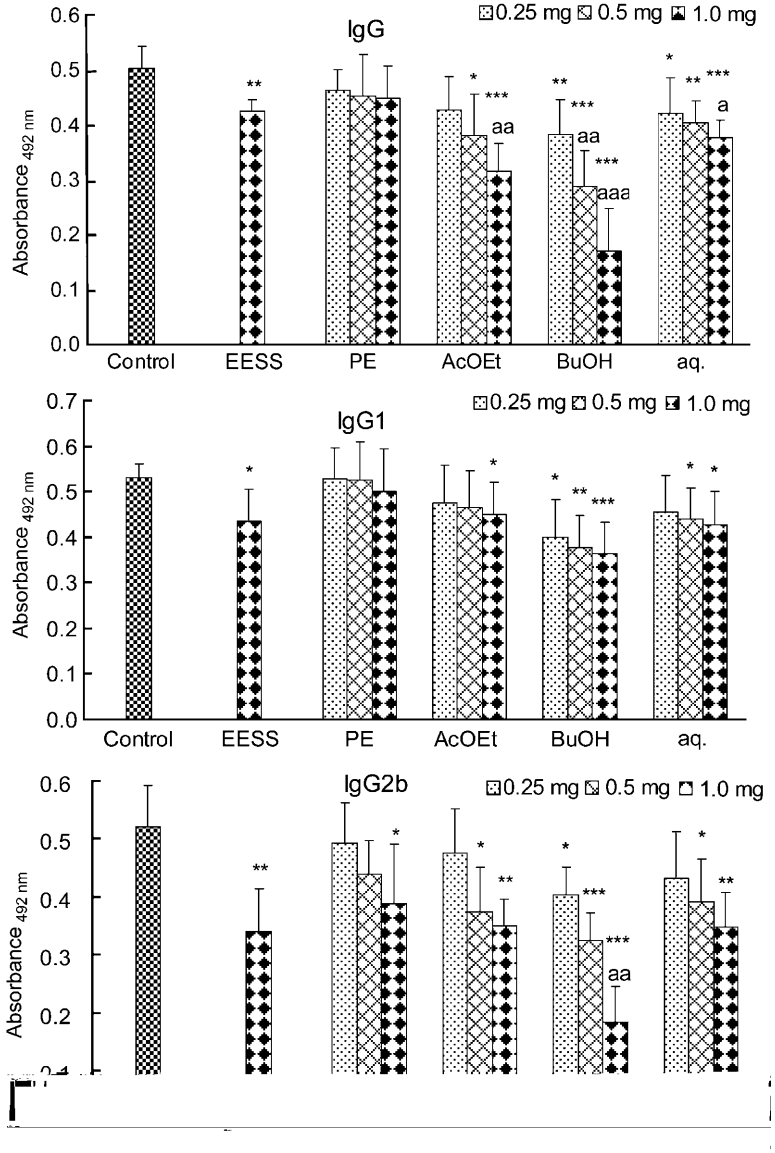
3. *Immunosuppressive Activity of Four Fractions of EESS.* A , : (, A B , (.) , 24.6, 7.9, 25.1, 42.4% , A A. A *Fig. 4*, C A- A- A- ($p < 0.05, p < 0.01, p < 0.001$). B 1.0 , C A A ($p < 0.01$ $p < 0.001$). A- A- *Fig. 5*. A- 1 A B , . - A ($p < 0.05, p < 0.01, p < 0.001$). , ($p < 0.05, p < 0.01, p < 0.001$). , ($p > 0.05$) 1 A . A 2 A- ($p < 0.05, p < 0.01, p < 0.001$). 2 B 1.0 ($p < 0.01$). C B A .

A B , . B . - , 35 36 .



. 4. *Effect of the EtOH extract of* . ( ), *and its fractions on Con A- and OVA-stimulated splenocyte proliferation in OVA-immunized mice.* C y A y 14, 1 , 0.25, 0.5, 1.0 7 y 5 . y y ± . . (*n* 5). A *SI*; *Exper. Part*). A *p* < 0.05, **: *p* < 0.01, ***: *p* < 0.001. ; A y ; B : ; .: .

y37 38 . y , -7-*O*-*β*-D- y (**1**), -7-*O*-*β*-D- y , y -3-*O*-*β*-D- y , -3-*O*-*β*-D- y - , -3,7- -*O*-*α*-L- y , -3-*O*-*α*-(6'''- y - y*β*-1,2- y)-7-*O*-*α*-L- y , -3'-*O*-*β*-D- y - B y - - , *Sephadex LH-20* y



. 5. *Effect of the EtOH extract of* . ( ), *and its fractions on OVA-specific IgG, IgG1, and IgG2b antibodies in OVA-immunized mice.* C ,y A ,y 14, 1 , 0.25, 0.5, 1.0 7 ,y 5 . A- , , 1, 2 ,y ,y A (*Exper. Part*). ± . . (*n* 5). A ∗: $p<0.05$, ∗∗: $p<0.01$, ∗∗∗: $p<0.001$; : $p<0.05$, : $p<0.01$, : $p<0.001$. ; A ,y ; B : ; .: .

1 - B- *in vitro* 39 . , **1** B . **1** B 3.44 ± 0.05%. , *S. sarmentosum*. *in vitro* *in vivo* .

Conclusions. C A- - *in vitro*, A- . A , B . , , *S. sarmentosum* C .

Experimental Part

General. (A), 3-(4,5- -2-)-2,5-)2*H*- - ( ), A (C A), ( ), -1640 , - *Sigma Chemical Co.* (A), - 1 2 *Southern Biotech. Assoc.* (B , A , A), (C) *Hangzhou Sijiqing Corp.*, (A) *Zhejiang Wanma Pharm Co. Ltd*, A (C A,) *Hangzhou Huadong Medicine Co. Ltd*, Z , C .

Experimental Animals. C (5) 18 22 *Zhejiang Experimental Animal Center* (C . 22-2001001, , C) 1 . *ad libitum*, . 24 ± 18, 50 ± 10%, 12- /12- . A . . C , *Institute for Experimental Animals* Z .

Plant Material. *Sedum sarmentosum* BUNGE , Z , C , 2004. A (. 20040612) *Laboratory of Nature Drug*, C A , Z C , . *Xiang-Ji Xue* C , Z *Preparation and Analysis of Extract.* *S. sarmentosum* 408 . (3) 70% 2 . A (1700 × *g*, 30), . 458 *ca.* 157.15 (; 5.24% (*w*/*w*)). CO_2 (, A , B . , . . A B , . , . B , 0.22-μ *Millipore* , . C. **1** B *Symmetry® C18* (250 × 4.6 . ., 5 μ), / $_2$ 35 : 65 *Waters 2996 PDA* *Water 600E* C . A . 10 / 0.89% . . 0.22-μ *Millipore* ,

- *Limulus* (*Zhejiang A and C Biological*, Z , C).
. 0.5 ( )/ .

Splenocyte Proliferation Assay. , *Hank*'
. (*Sigma*),
, $_4$C (0.8% (*w*/*v*)). A
(1500 × *g* 48 10), B
(1640 12 м *HEPES* (7.1), 0.05 м 2-
, 100 / , 100 µ / , 10% C). C
. C 95%.
28 . B 96-
- (*Nunc*) 1×10^7 / 100 µ , C A
(5 µ /), (10 µ /), 1640 C A
(0.1 100.0 µ /) 200 µ (
). 378 5% C $_2$. A 44 , 50 µ
. (2 /) 4 . (1400 ×
g, 5), . 200 µ .
(192 µ 8 µ 1 C) ,
A 570 630- 15 . (*SI*)
: *SI* -
- .

Administration and Immunization. 28 .
- - C , . A
200 µ A 1 *Alum* 0.2
. . A 2 . B ,
0.25, 0.5,
1.0 ( ), A (C A,
) 0.1 0.2 . 7 -
. -
, .
, A-

Splenocyte Proliferation Assay.
96- - (*Nunc*) 1×10 2(/ 31 - 222
0 0 213.9( )-451.9( )-

Statistical Analysis. ± . ., *Student' t-* , $p < 0.05$.

y *Zhejiang Provincial Science and Technology Council* (. 2004 13 1360002) .

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