DEPARTMENT OF HEALTH & HUMAN SERVICES
FOOD AND DRUG ADMINISTRATION

Public Health Service

Memorandum

Date . DEC 18 1998

From Senior Regulatory Scientist, Regulatory Branch, Division of Programs & Enforcement Policy (DPEP), Office of Special Nutritionals, HFS-456

2000 99 JAN -4 P2:08

Subject 75-day Premarket Notification for New Dietary Ingredient

To Dockets Management Branch, HFA-305

New Dietary Ingredient:	Mycellia of *Cordyceps sinensis* (liquid extract powder)
Firm:	P & Y American Dietary Supplements, Inc.
Date Received by FDA:	November 18, 1998
90-day Date:	February 15, 1999

In accordance with the requirements of section 413(a)(2) of the Federal Food, Drug, and Cosmetic Act, the attached 75-day premarket notification for the aforementioned new dietary ingredient should be placed on public display in docket number 95S-0316 after February 15, 1999.

Robert J. Moore, Ph.D.

95S-0316

RPT39

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
Washington, DC 20204

DEC 18 1998

2062 '99 JAN -4 P2:56

Mr. Simon Ko
President & CEO
P & Y American Dietary Supplements, Inc.
288 N. Ridge Road
P.O. Box 327
Marathon, Wisconsin 54448

Dear Mr. Ko:

This letter acknowledges receipt by the Food and Drug Administration (FDA) on November 18, 1998 of your letter, dated November 5, 1998, making a submission for a new dietary ingredient pursuant to 21 U.S.C. 350b(a)(2). Your letter notified FDA of your intent to market a product containing an ingredient consisting of the liquid extract powder of the cultured mushroom mycellia of *Cordyceps sinensis*.

The date that the agency received your notification submitted under 21 U.S.C. 350b(a), November 18, 1998, is the filing date for the notification. In accordance with the requirements of 21 U.S.C. 350b, for 75 days after the filing date, P & Y American Dietary Supplements, Inc. shall not introduce, or deliver for introduction, into interstate commerce any dietary supplement that contains this new dietary ingredient. As required by section 350b(a)(2), we will keep your submission confidential for 90 days from the date of receipt, and on February 15, 1998, it will be placed on public display at Dockets Management Branch. Commercial and confidential information in the notification will not be made available to the public.

Please contact us if you have questions concerning this matter.

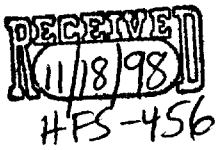
Sincerely,

Robert J. Moore, Ph.D.
Senior Regulatory Scientist
Division of Programs and Enforcement Policy
Office of Special Nutritionals

P&Y American Dietary Supplements, Inc.

288 N. Ridge Rd, P.O. Box 327
Marathon, WI 54448
Tel: 715-443-3338 Fax: 715-443-2818

Robert J. Moore, Ph.D.
Director, Division of Programs and Enforcement Policy
Office of Special Nutritionals (HFS-455), CFSAN
U.S. Food and Drug Administration
200 "C" Street, S.W.
Washington, D.C. 20204
November 5, 1998



Dear Dr. Moore,

Pursuant to Section 413(a)(2) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 350b(a)(2), P&Y American Dietary Supplements, Inc. wishes to inform the Food and Drug Administration that we will market a new dietary ingredient, liquid extract powder of the cultured mushroom **mycellia of Cordyceps sinensis**. Accordingly, two copies of this notification are submitted for your reference.

The new dietary ingredient will be sold in a 200 mg capsule (trade name: Corbrin Capsule™). The recommended dose is 5 capsules (equivalent to 1.0 g of mycellia of Cordyceps sinensis per serving, 2 to 3 times per day.

Attached please find the supporting materials for safety and pertinent product information. They included the Product Specifications, Manufacturing Process, summary of toxicity studies (Acute Toxicological Studies in Rats, Sub-acute Toxicological Studies in Rats, Mutagenicity and Mouse Bone Marrow Micronucleus Assay in Test Bacteria, and Chronic Toxicological Study in Rats, in both English translation and original reports in Chinese), and 38 English Abstracts of References from Scientific Journals describing physiological and pharmacological effects for Cordyceps sinensis that were published in either Chinese or Japanese originally.

Based on the information submitted, we have concluded that the dietary supplement product (Cordrin Capsule™) containing the new dietary ingredient liquid extract powder of mycellia of Cordyceps sinensis, will reasonably be expected to be safe under the recommended conditions of use.

Please contact me if you have any further questions concerning this matter. Your attention and efforts are appreciated.

Sincerely yours,

Simon Ko
President & CEO
P&Y American Dietary Supplements, Inc.

Enclosures

62346

Product Specifications

Product Name: Corbrin Capsule 200mg

Manufacturer: Hanzhou Zhongmei East China Pharmaceutical Co., Ltd.
866 MoGunSan Road, Hanzhou, 310011, China.

Content:

200 mg liquid extract powder of the cultured mushroom mycellia of Cordyceps sinensis.

New Dietary Ingredient:

Mushroom mycellia of Cordyceps sinensis.

Nutritional Contents:

	Carbohydrates	45-50%
	Amino Acids	25-30%
	Lipids	10-15%
	D-mannitol	5-10%
	Moisture	less than 5%
Heavy Metals:	Lead	less than 20 PPM
	Arsenic	less than 10 PPM
Standard Plate Count:		<290 CFU/gram
Salmonella:		Not detected
Yeast & Mold:		less than 10 CFU/gram

Manufacturing Process

1. Isolation of Mycellia from Cordyceps sinensis (family Hypercreaceae, a high quality grass-like mushroom from Tibet mountain).

2. Culture in liquid media (proprietary information of the compositions) at 15-25^{0}C for 30 to 45 days.

3. Gentle shaking of culture media at 15-25^{0}C for 8 days.

4. Continue culturing at 15-25^{0}C for 5-6 days then with gentle shaking for 1 day.

5. Repeat the same process (#4) twice.

6. Centrifugation.

7. Discard culture media

8. Residues were dried and pulverized.

9. Quality control tests.

10. Automated encapsulating process.

11. Quality control tests.

12. Packaging of final products.

浙 江 医 科 大 学

Date: Oct. 16, 1998

This is to certify that we have tested the toxicity of the liquid extract powder of the cultured Mycellia of Cordyceps sinensis manufactured by Hangzhou Zhongmei East China Pharmaceutical Co. Ltd. in 1993. These tests included; 1) Acute toxicological studies in rats and mice; 2) Sub-acute toxicological studies in rats and rabbits; 3) Mutagenicity and Mouse Bone Marrow Micronucleus assay in test bacteria; and 4) Chronic toxicological study in rats.

All tests indicated that the product is not toxic even at a very high dose, and no significant differences between the treatment and control groups in the above experiments as concluded in our summary report, dated March 18,1996.

Bian Rulian M.D Bian Ru-Lian 卞如廉

Professor, Department of Toxicology and Pharmacology
Zhejiang Medical University, Hangzhou, China

Summary of Toxicology of

liquid extract powder of Cultured Mycellia of

Cordyceps sinensis

Institute: Hangzhou Chongmei East China Pharmaceutical Co., Ltd.

Date: March 18, 1996

Introduction

Safety and efficacy are two important factors for which a new Chinese herbal medicine must be considered. Toxicological studies are mainly performed to evaluate the safety and to provide scientific evidence for clinical studies. Our company has developed a gelatin capsule containing the powder made from the liquid extract powder of cultured mycellia of Cordyceps sinensis. This is a new herbal ingredient in the category of Traditional Chinese Herbal medicine. In order to test the safety of this new ingredient, acute, subacute, and chronic toxicological studies, as well as two tests for mutagenicity, namely, the Ames test and mouse bone marrow micronucleus assay, were performed according to the required regulations. The results demonstrated that the oral LD_{50} of Cordyceps sinensis liquid extract powder in mice and rats was larger than 10 g/Kg of body weight. Therefore, this compound is not considered toxic according to the acute toxicology classifications. Subacute toxicological studies showed that Cordyceps sinensis liquid extract powder did not cause any significant changes in the cardiovascular system, liver, kidneys, lungs, gastrointestinal organs, and adrenal glands of the test animals when given by gavage. Furthermore, when given by gavage at the high dose level of 5 g/Kg, Cordyceps sinensis liquid extract powder did not cause an increase in the number of mouse bone marrow micronucleated cells, indicating that the test compound did not inhibit bone marrow cells. The detailed experimental results are presented below for review.

Materials and Methods

The oral LD_{50} of Cordyceps sinensis liquid extract powder was determined by the standard method. The animals used were Wistar rats and Kuming species mice raised in our University. The body weight of the rats ranged from 200 – 250 grams, whereas the body weight of the mice ranged from 20 – 25 grams. The test animals were divided into 8 groups by a randomized code, with five animals per group. Four of the 8 groups were males, and the remaining 4 groups were females. The four dose levels were 10, 4.64, 2.15, 1.0 g Cordyceps sinensis liquid extract powder per Kg of body weight.

Cordyceps sinensis liquid extract powder was dissolved in 10% starch solution to reach the final concentration of 2g /mL. According to the dose level, an appropriate amount of the mixture was given to each of the animals by gavage. The volume given to the rats each time did not exceed 2 mL/100 g body weight, and the volume given to the mice each time did not exceed 0.2 mL/10 g body weight. At the high dose level of 10g/Kg body weight, the animals received 3 gavages. There was a three-hour wait time between the gavages at the high dose level. The animals were not allowed any food for 14 hours prior to dosing. The animals were observed for one week after dosing.

Experiments and Results

1. Acute toxicological study:

At the high dose level of 10 g/Kg, no toxic reactions were observed immediately after dosing in both the rats and mice. In this high dose group, during the first week after dosing, all the male mice were alive, whereas one female mouse died. All the female rats were alive, whereas one male rat died. Autopsy of the dead animals showed inflammation in the lungs. No significant changes in other organs were observed macroscopically. No death occurred, and no toxic reactions were observed in any of the other dose groups of either the mice or the rats.

It is therefore concluded that the oral LD_{50} of Cordyceps sinensis liquid extract powder in mice and rats is larger than 10g/Kg, and is not considered a toxic compound.

2. Subacute toxicological study:

Thirty rats, half of them females and the other half males, were divided into three groups by a randomized code. The animals weighed between 80 and 120 grams. The first group was the control group, whereas the other two groups were the low dose group and high dose group. The dose level of the high dose group was three times higher than that of the low dose group.

The rats in the control group received distilled water by gavage every morning for a period of 14 days. The volume was 0.5 mL/100g body weight. The low dose group received 1.0 g/100g (10 g/Kg) body weight by gavage every morning for 14 days. The high dose group received 3.0 g/100g (30 g/Kg) body weight by gavage every morning for 14 days.

Prior to dosing, the rats were weighed and total and differencial account of peripheral blood were recorded. After dosing commenced, the general activity, food consumption, water consumption and feces of the animals were examined every day during the treatment period. Total and differencial account of peripheral blood of the animals was performed on Day 7 and Day 14. On Day 15, half of the animals in each of the three groups were sacrificed. Activity of serum Glutamic-Pyruvic Transminase (sGPT) in the blood of the sacrificed animals was determined. The heart, liver and kidneys of the sacrificed animals were fixed in 10% formalin solution for histopathological examination. The rest of the animals were sacrificed one week after the last day of dosing. The same tests as described above were performed.

The results showed that the blood chemistry (i.e. the numbers of RBC, WBC and platelets) in any of the three groups was within the normal range for rats, when compared between all the groups, and when compared within each group before and after dosing. Furthermore, there were no significant histopathological changes in the heart, liver and kidneys in the treatment groups compared to the control group.

It is concluded that when rats were given Cordyceps sinensis liquid extract powder by gavage every day for a period of 14 days at extremely high dose (30 g/Kg), the test compound did not induce any toxicological changes in the heart, liver, kidneys and blood cells of the rats.

In a separate studies, rabbits were given Cordyceps sinensis liquid extract powder orally every day for 30 days. The dose levels were 10, 5, and 1 g/Kg body weight. General behavior, liver function, kidney function, RBC, WBC, and hemoglobin were examined. These parameters were all within the normal ranges for rabbits. No significant microscopic changes were observed in the heart, liver, kidneys, gastrointestinal system and adrenal gland of the rabbits.

3. Mutagenicity and Mouse Bone Marrow Micronucleus Assay:

a. Mutagenicity

Cordyceps sinensis liquid extract (containing 1 g of the active ingredient per mL) was supplied by the Hangzhou Chongmei East China Pharmaceutical Co., Ltd. This solution contains 1.5 mg/mL histidine. The test bacteria were Salmonella *typhimurium* strains TA98, TA100 and TA102. The S9 extract (batch No. 85-3-14) used was 50 ul S9 per Petri dish. The mutagenicity test was performed according to the requirements and procedures for testing new drugs. The results showed that the number of mutant bacterial colonies in the treatment plates were one time higher than that in the control plates. The increase is dependent on the dose of the test compound. Therefore, the test compound is considered positive in this mutagenicity test.

Cordyceps sinensis liquid extract (0.1 mL used for each plate) contained histidine that was 10X higher than the amount permitted in the top agar layer of the plate (15.6 ug/plate). In order to test whether a high histidine concentration may change the result of the mutagenicity test, the following experiment was performed and the results are reported in Tables 1 and 2.

It is concluded that the positive results seen with Cordyceps sinensis liquid extract on bacterial strains TA98, TA100 and TA102 was due to the high concentration of histidine in the test solution, and not caused by the test compound itself.

b. Mouse bone marrow micronucleus assay

Material and Methods

Cordyceps sinensis liquid extract was supplied by the Hangzhou Chongmei East China Pharmaceutical Co., Ltd.

NIH species mice were supplied by the Shanghai Animal Center. The body weights of the mice ranged from 18 to 30 grams. The test compound was dissolved in 10% starch solution. Two groups of fasted mice (10/group), with five females and five males in each group, were given the test compound twice by gavage, at the total dose level of 10 mg/Kg body weight.

According to the report by Heddle (1981, 1983), in order to decrease false positives and to increase sensitivity of the test, the high dose level used here was 5 g/Kg (the oral LD_{50} of the test compound was larger than 10 g, and the highest tolerable dose was used here as the high dose). After the second dosing, one group of mice was sacrificed 24 hours later and the second group of mice was sacrificed 48 hours later. According to the regular method for making slides, the time when the highest number of micronucleated cells were detected was determined. Then two lower dose levels at 2.5 and 1.25 g/Kg were also investigated. The positive control group received 60 mg/Kg ammonium phosphate by peritoneal injection. The negative control group received 10% starch solution without the test compound. The animals were sacrificed according to schedule. Slides were made, stained by May-Giemsa, and examined under a microscope. The PCE/RBC ratio was calculated by counting 100 red blood cells (RBC) on each slide to determine the number of polychromatic erythrocytes (PCE). By counting 1000 PCE per animal, the number of micronucleated polychromatic erythrocytes (MNPCE) was determined. Significance test was performed by the Kasterballm Bouman method.

Results

In the high dose group of 5g/Kg, Table 3 shows the percentage of micronucleated cells 24 and 48 hours post dosing. These results indicated that there were no significant changes in the occurrence of micronucleated cells in both males and females at both time points. Statistical analysis showed the difference was not significant ($P > 0.05$). Based on this result, all the other animals were sacrificed at 24 hours post dosing. The results are shown in Table 3.

Table 3 also shows that the positive control group had a significantly higher occurrence of micronucleated cells ($P < 0.01$).

Compared to the negative control group, the test compound did not cause any significant changes in the percentage of micronucleated cells ($P > 0.05$). At any of the dose levels, the mouse bone marrow PCE/RBC ratio was within the normal range, indicating that Cordyceps sinensis liquid extract powder did not inhibit mouse bone marrow cells.

Conclusion

Cordyceps sinensis liquid extract powder at 5 g/Kg did not increase the number of mouse bone marrow micronucleated cells, the result of this test was negative.

4. Chronic toxicological Study:

Materials and Methods

Animals: Wistar rats with an average body weight of 160+/-10 grams. The animals were purchased from the animal facility of Xian Fourth Military Medical University.

Test compound: Cordyceps sinensis liquid extract powder produced by the Hangzhou Chongmei East China Pharmaceutical Co., Ltd.

Experiments and Results

Two hundred rats, half females and half males, were divided into four groups. One group was control group, the other three groups were treatment groups. The dose levels were 0, 2.5, 5, 7.5 g/Kg/day. The treatment period was 8 months. During the treatment period, the animals were observed for their general behavior, fur condition, and food consumption. Body weights were recorded periodically (Figure 1). Interim sacrifice was conducted four months after dosing commenced. At interim sacrifice, half of the animals in each group were sacrificed by decapitation, and the blood was collected. At the end of the treatment period, all the animals, except 5 per group, were sacrificed by decapitation. The five remaining animals were observed for another 2 weeks without any treatment. The values of SGPT and SGOP were determined by the modified King's method, the values of urea nitrogen were determined by the Diacetyl-Oxime method, and the values of creatinine were determined by the Alkaline picrate method. RBC, WBC, hemoglobin and platelets were determined by routine blood chemistry method. Organ weights of the liver, kidneys, pancreas, testes, and adrenal gland were determined and expressed as grams per 100 grams of body weight. Microscopic examination of the heart, liver, pancreas, kidneys and lungs were performed.

a. General observation

All the treatment groups were observed as normal when compared to the control group regarding the condition of the fur, food consumption and general activity. The animals that were not sacrificed at the end of the treatment did not show any abnormal conditions during the 2 week observation period.

b. Body weight

Figure 1 shows the effect of the test compound on the body weight of the animals at Month 4. Figure 1 shows the effect of the test compound on the animals from 4 to 8 months.

The results shown in Figure 1 demonstrated that the test compound increased the body weight of the animals in the treatment groups compared to controls. This increase was more prominent in the high dose group.

c. Liver and kidney functions

Table 4 shows the effects of the test compound on the values of SGPT, SGOT, BUN and Creatinine of the test animals.

As shown in Table 4, four months after the oral treatment started, the values of SGPT in all the treatment groups were lower than that in the control group. The value of Cr in the low dose group was also significantly lower than that in the control group. At the eighth month, The values of SGPT in the low dose group, and the values of BUN in the low and mid-dose groups were both significantly lower than that in the control group. After the treatment was terminated, some of the animals were observed for an additional 2 weeks. The values of SGPT, SGOT, BUN and Cr in these animals did not show any significant difference from the values in the control group.

d. Hematology

The results are shown in table 5. There were no significance changes in the number of RBC, WBC, platelets and hemoglobin in any of the treatment groups compared to the control group, at four months and eight months during the treatment period, as well as 2 weeks after the treatment was terminated.

e. Organ weights

Table 6 shows the effects of Cordyceps sinensis liquid extract powder on the weight of the liver, kidneys, pancreas, testes, and adrenal gland of the test animals. The results showed that the liver weight in the low dose group was significantly lower than that in the control group. At four months and eight months after treatment started, the weight of the testes in all the treatment groups were significantly higher than that in the control group.

f. Histopathology

The details are shown in Table 7. In summary, various degrees of congestion and inflammatory reaction were observed in the heart, liver, pancreas, lungs and kidneys in all groups including the control group. There were no significant differences between the treatment and control groups.

Table 7 shows that some histopathological changes were observed in all the groups including the control group, and there were no significance changes between the groups. The changes in the treatment groups were not related to dose levels. It is concluded that the histopathological changes observed in the test animals were not related to the treatment.

Conclusion and Discussion

Cordyceps sinensis is considered a rare and expensive Chinese herbal medicine. It is traditionally used to enhance the function of the immune system, lungs and kidneys. It is also used to enhance sexual performance. The main thrust of this report is on the effect of oral Cordyceps sinensis liquid extract powder in a chronic (8-month) toxicological study in rats. The results showed that oral Cordyceps sinensis liquid extract powder increased the body weight of the test animals. Because Cordyceps sinensis liquid extract powder had the effect of lowering the SGPT in rats, it may be possible that Cordyceps sinensis liquid extract powder can decrease the level of SGPT due to liver impairment. In the chronic study, the effect of lowering the SGPT in rats was most prominent at Month 4. At this time, all three treatment groups showed significantly lower SGPT values than that in the control group. This effect was the most prominent in the mid and high dose groups. Four months into the treatment, the weather became very hot. We wondered if Cordyceps sinensis liquid extract powder increased the ability of the rats to adapt to the hot weather. At Month 4, the Creatinine value in the low dose group was significantly lower than that in the control group. Although these values in the mid and high dose groups were also lower than the control group, the difference was not significant. At Month 8, the values of BUN in the mid and low dose group were significantly lower than that in the control group. This result is consistent with the clinical experience by Shanghai Chinese Herbal Medical College. They reported the use of Cordyceps sinensis for lowering Cr and Bun caused by liver dysfunction. Our study also showed that oral Cordyceps sinensis liquid extract powder significantly increased the testes weight of male rats. This finding could be related to the traditional use of Cordyceps sinensis for treating impotence. Certain histopathological changes were observed in the test animals, but no significance changes between the treatment groups and the control group were noted. It is therefore concluded that Cordyceps sinensis liquid extract powder basically is not toxic to all tested animals.

Table 1. Mutagenidity of Salmonella typhimurium strains TA98, TA100 and TA102.

Test compound	Average mutant bacterial colonies/plate							
	TA97		TA98		TA100			TA102
Mg/plate	-S9	+S9	-S9	+S9	-S9	+S9	-S9	+S9
0	265	237	33	50	204	183	250	325
1	260	209	35	52	181	181	250	343
10	279	201	34	53	254	222	303	361
100	481	416	55	72	361	300	314	496
200	709	372	61	44	479*	388*	256	310
300		316	49	36		473*	138	99

- Mutant baterial colonies/plate, positive

Table 2. Effects of Histidine on the mutagenicity of BaterialStrain TA100.

Histidine (ug/plate)	Equivalent to test compd (mg/plate)	Average bacterial colonies/plate
0	0	181
1.5	1	192
15	10	239
150	100	795
300	200	1072
450	300	too many to count

High content of histidine affect the strain TA97(-S9), TA100(-S0/+S9) to cause fause positive of mutagenicity of baterial mutagenicity.

Table 3. Percentage of micronucleus occurrence induced by Cordyceps sinensis liquid extract powder (5 g/Kg) at two time points.

Sampling Time Time after 2nd Dose	No. Mice	PCE	No. Micronucleus	Percentage
	Female Mice			
24 hours	5	5027	10	1.99
48 hours	5	5002	9	1.80
	Male Mice			
24 hours	2	2003	4	2.0
48 hours	4	4009	5	1.25

Figure 1
Chronic Toxicity Study Section 4
The Average Body Weight (50 rats) during 4 months oral administration of various doses of Cordyceps sinensis liquid extract powder

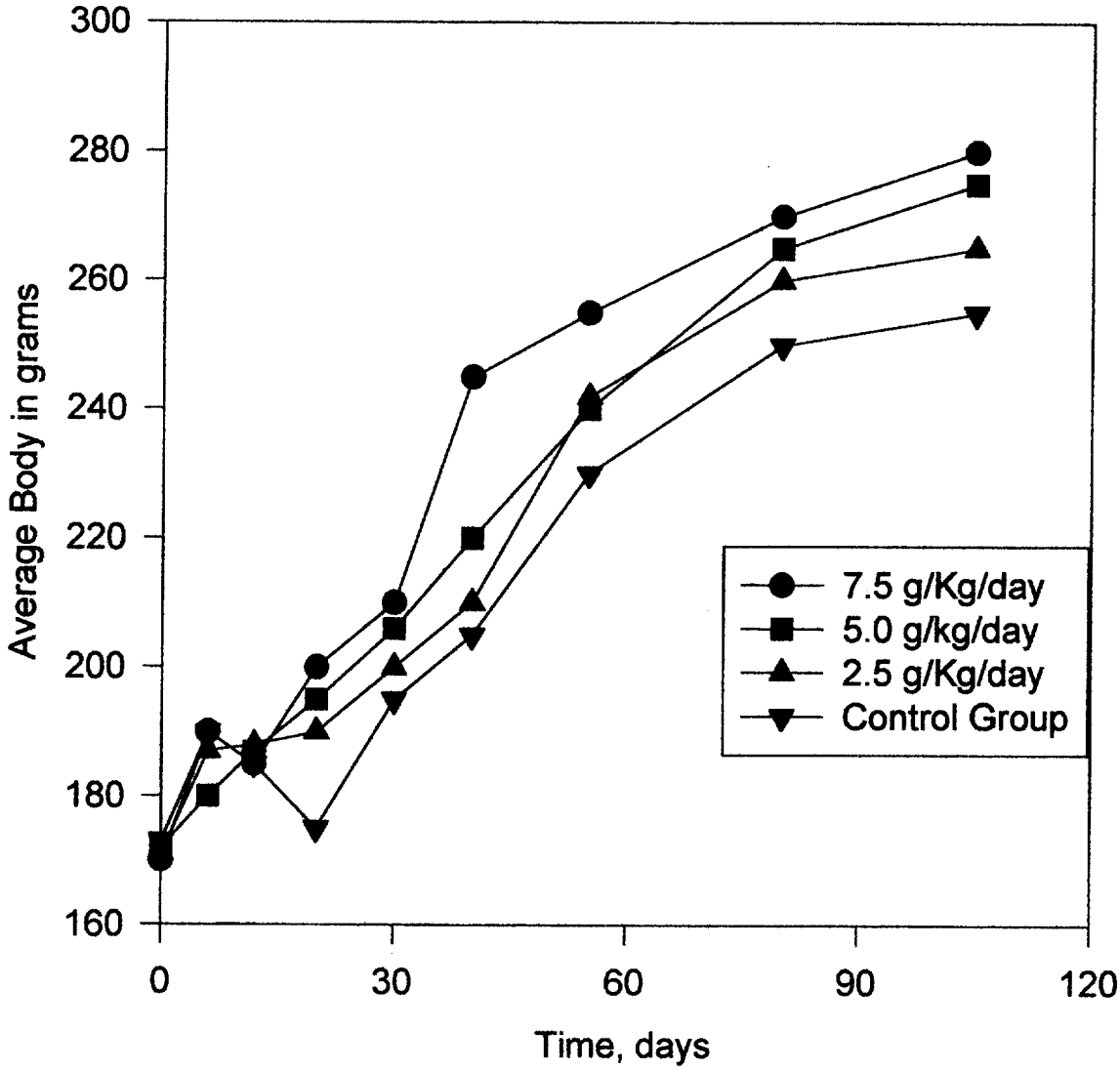


Table 4. Effects of oral Cordyceps sinensis liquid extract powder on the liver and kidney functions in the chronic toxicity study in rats.

Test time	Dosage (g/Kg/day)	No. Rats	SGPT (u%)	SGOT (u%)	BUN (mg%)	Cr (mg%)
4 months	7.5	20	155.3 (27.4)#	187.5 (42.2)	25.88 (11.28)	1.79 (0.83)
	5	20	148.8 (36.2)#	209.5 (39.7)	25.40 (11.14)	1.97 (1.03)
	2.5	20	157.5 (44)*	220.8 (39.3)	19.2 (8.49)	1.82 (0.84)*
	control	20	193.0 (39.2)	200.8 (22.0)	19.83 (7.68)	2.41 (1.7)
8 months	7.5	18	147.1 (32.4)	202.2 (78.0)	15.88 (2.91)	1.37 (0.57)
	5	21	170.1 (49.8)	202.1 (51.5)	13.94 (2.43)#	1.84 (0.71)
	2.5	18	137.9 (26.8)*	183.8 (58.8)	12.58 (2.0)@	1.39 (0.85)
	control	18	177.0 (88.2)	209.2 (45.6)	18.71 (2.82)	1.32 (0.48)
0.5 month after oral administration stopped	7.5	5	117.0 (29.2)	174.0 (52.9)	15.92 (2.04)	0.91 (0.34)
	5	5	185.7 (33.7)	199.8 (55.0)	17.4 (4.01)	1.14 (0.55)
	2.5	4	151.3 (25.7)	181.3 (71.8)	18.35 (3.54)	0.90 (0.52)
	control	5	133.1 (29.1)	171.0 (24.8)	15.12 (1.58)	1.10 (0.38)

* $P<0.05$, # $P<0.01$, @ $P<0.001$.

Table 5. Hematology Results of the 8-month Chronic Toxicity Study in Rats.

Test time	Dosage (g/Kg/day)	No. Rats	RBC (x104/mm^3)	WBC (x104/mm^3)	Hb (g/dL)	Platet (x104/mm^3)
4 months	7.5	20	441.3 (125.4)	9.98 (2.84)	6.87 (1.27)	23.68 (3.3)
	5.0	20	417.5 (70.4)	8.13 (2.34)	8.54 (1.38)	27.19 (8.17)
	2.5	20	385.8 (51.9)	9.09 (3.02)	8.41 (1.77)	26.78 (12.16)
	control	20	377.4 (58.8)	9.37 (2.95)	8.87 (1.35)	25.71 (8.34)
8 months	7.5	18	737.2 (89.8)	7.95 (2.57)	10.95 (1.15)	25.38 (8.16)
	5.0	21	709.5 (128.3)	7.99 (2.34)	10.59 (0.81)	25.84 (8.93)
	2.5	18	831.7 (103.2)	8.99 (3.28)	11.34 (2.15)	22.71 (7.0)
	control	18	743.7 (177.1)	8.2 (2.99)	10.77 (2.17)	30.13 (12.68)
0.5 months after oral administration stopped	7.5	5	884.6 (65.9)	7.85 (1.88)	10.14 (0.9)	21.60 (2.26)
	5.0	5	868.0 (13.2)	6.28 (1.68)	9.88 (1.76)	24.0 (3.46)
	2.5	4	851.8 (44.4)	6.58 (1.32)	10.99 (1.22)	26.13 (1.22)
	control	5	953.9 (93.7)	7.52 (2.21)	12.04 (2.71)	20.08 (5.57)

Table 6. Effect of Oral Cordyceps sinensis Liquid Extract Powder on the Organ Weights in the Chronic Toxicity Study in Rats.

Time Months	Dose g/Kg/ml	# Rats	Liver (g/100g BW)	Kidney	Pancreas	Testes	Adrenal Gland
			(----------mg/100g boby weight----------)				
4	7.5	20	3.345(0.398)	674 (71)	357 (91)	801(123)	57 (28)
	5.0	20	3.233(0.715)	629(218)	571(456)	1441(913)*	76 (34)
	2.5	20	2.846(0.440)#	581(85)	365(140)	988 (185)*	85 (42)
	control	20	3.114(0.39)	618 (148)	321 (61)	704 (202)	58 (26)
8	7.5	18	3.06 (0.33)	640 (70)	320 (80)	590 (130)#	
	5.0	21	3.22 (0.70)	640 (100)	360 (110)	845 (74)@	
	2.5	18	2.75 (0.4)	620 (80)	370 (110)	664 (187)@	
	control	18	3.26 (0.81)	660 (130)	390 (180)	440 (130)	
2 weeks after treatment termined							
	7.5	5	2.98 (0.17)	640 (90)	310 (50)		
	5.0	5	3.18 (0.35)	690 (50)	300 (50)		
	2.5	4	2.88 (0.22)	640 (50)	340 (50)		
	control	5	2.88 (0.4)	630 (50)	380 (190)		

* $P<0.01$; # $P<0.05$; @ $P<0.001$

Table 7. Histopathology of the 8 –month chronic toxicity study in Rats.

A: 4 Months after Treatment of daily dose of 0, 7.5, 5.0 and 2.5 g/kg of Cordycep sinensis liquid powder.

Dose (g/Kg/day)	control	7.5	5.0	2.5
No. of Rats	20	20	20	20
Heart Congestion	8	9	9	8
Inflammatory cell infiltration	2	2	2	1
Focal Necrosis	0	0	0	0
Liver Congestion	3	5	12	3
Inflammatory cell infiltration	7	5	7	4
Cloudy Swelling of hepatocyte	0	2	3	2
Focal Necrosis	1	2	3	2
Fatty degeneration of hepatocyte	0	0	0	0
Cholangiolar proliferation	0	1	4	0
Pancreas				
Congestion	5	4	5	5
Focal Hemorrhage	0	0	0	0
Proliferation of white pulp	0	1	1	1
Decrease in lymphocytes	0	2	1	1
Lung Congestion	3	5	10	5
Edema	1	2	2	1
Focal Necrosis	5	2	4	1
Inflammatory Degeneration	5	7	7	7
Kidneys				
Congestion	7	8	7	10
Cloudy Swelling	3	3	4	7
Cast	0	0	0	0
Inflammation	4	4	3	3
Interstitial Hemorrhage	1	4	2	2
Adrenal Gland	-	-	-	-

Table 7. Histopathology of the 8 –month chronic toxicity study in Rats.

B: 8 Months after Treatment of daily dose of 0, 7.5, 5.0 and 2.5 g/kg of Cordycep sinensis liquid powder.

Dose (g/Kg/day)	control	7.5	5.0	2.5
No. of Rats	10	10	10	10
Heart Congestion	6	8	8	6
Inflammatory cell infiltration	7	9	8	6
Focal Necrosis	0	0	0	0
Liver Congestion	9	10	9	10
Inflammatory cell infiltration	9	10	10	10
Cloudy Swelling of hepatocyte	3	5	8	5
Focal Necrosis	0	0	1	0
Fatty degeneration of hepatocyte	1	0	3	0
Cholangiolar proliferation	0	1	1	2
Pancreas				
Congestion	3	4	6	8
Focal Hemorrhage	1	0	3	1
Proliferation of white pulp	0	1	4	0
Decrease in lymphocytes	0	2	2	1
Lung Congestion	2	8	5	6
Edema	2	0	0	0
Focal Necrosis	1	3	2	2
Inflammatory Degeneration	8	7	5	0
Kidneys				
Congestion	8	8	8	6
Cloudy Swelling	3	2	3	3
Cast	0	0	0	0
Inflammation	7	7	8	9
Interstitial Hemorrhage	6	4	3	5
Adrenal Gland	-	-	-	-

Table 7. Histopathology of the 8 –month chronic toxicity study in Rats.

C: 2 weeks after termination of 8 Months Treatment of daily dose of 0, 7.5, 5.0 and 2.5 g/kg of Cordycep sinensis liquid powder.

Dose (g/Kg/day)	control	7.5	5.0	2.5
No. of Rats	5	5	5	4
Heart Congestion	4	3	3	3
Inflammatory cell infiltration	4	3	4	3
Focal Necrosis	1	1	0	0
Liver Congestion	5	3	3	2
Inflammatory cell infiltration	5	4	4	3
Cloudy Swelling of hepatocyte	1	1	1	0
Focal Necrosis	0	0	0	1
Fatty degeneration of hepatocyte	0	0	0	0
Cholangiolar proliferation	1	0	0	1
Pancreas				
Congestion	3	3	0	0
Focal Hemorrhage	1	0	0	0
Proliferation of white pulp	0	0	0	0
Decrease in lymphocytes	0	0	0	0
Lung Congestion	2	3	1	1
Edema	0	0	0	0
Focal Necrosis	2	1	0	2
Inflammatory Degeneration	5	5	5	4
Kidneys				
Congestion	3	3	4	4
Cloudy Swelling	2	3	4	1
Cast	0	0	0	0
Inflammation	4	4	3	4
Interstitial Hemorrhage	4	1	2	2
Adrenal Gland	-	-	-	-

中药品种保护申报资料(4)

发酵虫草菌粉及百令胶囊

毒理研究资料

申报单位：杭州中美华东制药有限公司

申报日期：　一九九六年三月十八日

安全，有效是新药必须具备的两大要素。毒理研究的主要目的是对新药的安全性做出评价，为临床用药提供科学依据。我公司研制物发酵虫草菌粉及其制剂"百令胶囊"是中药一类新药，为确证其安全性，按规定进行了急性毒性试验，亚急性毒性试验，致突变、骨髓微核试验、长期毒性试验。结果表明：发酵虫草菌粉大、小鼠经口服急性毒性[LD_{50}]大于10g/kg，按急性毒性分级标准属无毒类。亚急性试验证明发酵虫草菌粉煎剂灌胃给药，对心血管系统，肝、肾、肺、胃肠、肾上腺等主要脏器均无明显改变。发酵虫草菌粉5g/kg灌胃，未引起小鼠骨髓微核率的增加，表明其对骨髓没有抑制作用。现将详细资料归总如下，以备审核。

试 验 方 法

用霍恩氏法测定发酵虫草菌粉急性经口毒性(LD_{50})，试验用动物为本校动物室繁殖的Wistar种大鼠及昆明种小鼠。大鼠体重为200～250克，小鼠体重20～25克。大、小鼠分别按随机分组法分为8组，雌雄各4组，每组5只动物。4个剂量为10、4.64、2.15、1.0g/kg体重。

发酵虫草菌粉用10%淀粉液混悬，每2克发酵虫草菌粉配制成10毫升发酵虫草菌粉淀粉混悬液，按剂量要求，用灌胃法给药。一次灌胃量大鼠不超过2ml/100g体重，小鼠不超过0.2ml/10g体重，10g/kg组分三次灌胃，二次灌胃间隔3小时，灌胃前禁食14小时，灌胃后观察一周。

试 验 与 结 果

一、急性毒性试验[1]

10g/kg组给药后，未出现明显中毒症状，给药后一周内，雄性小鼠全部存活，雌性小鼠死亡一只，雌性大鼠全部存活，雄性大鼠死亡一只，死亡动物解剖，除肺部有炎症病变外，其余脏器没有肉眼所见病变。其余各剂量组动物于给药后均未出现明显中毒症状，一周后全部存活。

结　　论

发酵虫草菌粉大、小鼠急性经口毒性(LD_{50})大于10g/kg 按急性毒性分级标准属无毒类。

二、亚急性毒性实验[2][3]

取体重80～120克的大白鼠30只，雌雄各半，随机分为三组，第一组为对照组，第二组为极量组，第三组为三倍极量(6倍治疗量)组。

第一组于每天上午灌胃蒸馏水一次，剂量每百克体重0.6ml，共14天，第二组每天上午灌胃药物一次，剂量每百克体重1.0g，共14天，第三组每天上午灌胃药物一次，剂量每百克体重3.0g。

于实验前称每个动物的体重，查外周血象，以后每天记录活动，进食，饮水，粪便等情况。另外每七天查外周血象一次。于第十五天的上午每组处死动物一半，取血测定血清谷丙转氨酶活力，取心、肝、肾用10%福尔马林固定，做组织切片检查。另一半动物于停药后一周处死，做上述同样检查。

结果表明，各组动物的血象(红细胞，白细胞，血小板计数)不论给药前后的自身对比，还是组间对比，均在正常范围内，其值经统计学处理无显著差异。心、肝、肾组织切片检查，各给药组与对照组相比，无显著差异。

以上实验证明发酵虫草菌粉煎剂灌胃给药时，对血液系统及心、肝、肾无明显毒性。

家兔每日Po发酵虫草菌粉10g/kg×日；5g/kg×日，1g/kg ×日连续给药30天，各剂量组动物外观活动正常，肝肾功能、红细胞、白细胞、血红蛋白均在正常范围；显微组织学观察心、肝、肾、肺、胃肠、肾上腺等主要脏器均无明显改变。

三、致突变、骨髓微粒试验

1. 发酵虫草菌粉提取液的细菌致突变试验[4]

发酵虫草菌粉提取液(含量1g/ml)由杭州中美华东制药有限公司提供，含组氨酸1.5mg/ml，测试菌株为组氨酸缺陷鼠伤寒沙门氏菌TA98，TA100，TA102，S9(批号85-3-14)混合液用量中含S9为50μl/皿，试验按新药药理毒理研究的技术要求规定和标准平板程序进行，结果判断标准：处理皿每皿平均回变菌落数值比对照皿高一倍，且有剂量效应关系者，判为阳性。

发酵虫草菌粉提取液(0.1ml/皿)中组氨酸的含量比试验用顶层培养基中的允许量(15.6μg/皿)约高10倍，为探明组氨酸含量对试验结果的影响，特进行了组氨酸模拟试验。试验结果见表1和表2。

表1. 发酵虫草菌粉提取液的细菌诱变试验*

发酵虫草菌粉	每皿回变菌落数(均值)							
	TA97		TA98		TA100		TA102	
(mg/皿)	-S9	+S9	-S9	+S9	-S9	+S9	-S9	+S9
0	265	237	33	50	204	183	250	325
1	260	209	35	52	181	181	250	343
10	279	201	34	53	264	223	303	361
100	481	416	55	72	361	300	314	496
200	709*	372	61	44	479*	388*	256	310
300		316	49	36		473*	138	99

* 阳性对照每皿回变菌落数:
(-S9) TA100 1522 (NaN_3); TA97 8222 (Dex on); TA98 733 (2, 7AF)
(+S9) TA100 1510 (2AF); TA98 3300 (2AF)

表2. 组氨酸对菌株TA100回变的影响

组氨酸(ug/皿)	相当于发酵虫草菌粉量(mg/皿)	平均每皿菌落数
0	0	181
1.5	1	192
15	10	239
150	100	795
300	200	1072
450	300	密集生长

结论: 发酵虫草菌粉提取液对菌株TA97 (-S9)、TA100 (-S9/+S9) 的诱变试验阳性结果可能是其组氨酸含量丰富造成的赝象。

2. 发酵虫草菌粉小鼠骨髓微核试验[6]

材 料 和 方 法

发酵虫草菌粉由杭州中美华东制药有限公司提供。

实验动物为上海动物中心饲养的NIH种小鼠，体重18-30克。受试物发酵虫草菌粉用10%淀粉混悬，10mg/kg量空腹二次灌胃。

按Heddle(1981，1983)报道，为了减少假阴性，提高检出率，均取5g/kg作为最高剂量(急性经口LD_{50}大于10克以最大可能给予量作最高剂量)，在第二次给药后24，48小时各处死一组动物，每组10只小鼠，雌雄各半。按常规方法制片，找出出现微核率最高的时间，然后另设2.5和1.25g/kg二个低剂量组。阳性对照组用60mg/kg环磷酰胺一次腹腔注射，阴性对照组给予10%淀粉液。按设计规定时间处死动物，制片，May-Giemsa染色，在显微镜下计数100个红细胞(RBC)及相应的嗜多染红细胞(PCE)求PCE/RBC之比，每只动物数1000个PCE，求出微核率，按Kasterballm Bouman法进行显著性检验。

试 验 结 果

发酵虫草菌粉5g/kg组于第二次给药后24、48小时的微核发生率列于表3。结果表明不同时间点雌、雄小鼠的微核发生率，经统计学处理，均无显著性差异，均无显著性差异($P>0.05$)。故其余各组均取第二次给药后24小时处死动物制片。结果列于表3。

由表3可见，环磷酰胺阳性对照组雌、雄小鼠的微核发生率明显高于阴性对照组($P<0.01$)。

发酵虫草菌粉各剂量组微核发生率，与阴性对照组比较，经显著性检验均无显著性差异($P>0.05$)。5、2.5、1.25g/kg各组小鼠骨髓PCE/RBC之比均在正常范围内，表明发酵虫草菌粉对骨髓没有抑制作用。

小 结

发酵虫草菌粉5g/kg未引起小鼠骨髓微核率的增加，微核试验阴性。

表3. 发酵虫草菌粉5g/kg组小鼠不同采样时间的微核发生率

取样时间	雌鼠				雄鼠			
第二次给药后(小时)	动物数	PCE数	微核数	微核率(%)	动物数	PCE数	微核数	微核率(%)
24	5	5027	10	1.99	2	2003	4	2.0
48	5	5002	9	1.80	4	4009	5	1.25

四、动物长期毒性试验[6]

实 验 材 料

动物: 体重160±10g健康Wistar大白鼠,购于西安第四军医大学动物房。
试药: 发酵虫草菌粉系杭州中美华东制药有限公司生产。

实 验 方 法 和 结 果

200只大白鼠,雌雄近各半,均分四组,一组对照,三组给药,剂量分为为P、0 7.5、5、2.5g/kg/day,连续八个月,在给药过程中观察、记录大白鼠外观症状、毛色、食欲,定期记录体重,给药四个月时,每组动物雌雄各半,断头取血处死,剩下一半继续按原剂量给药。给药结束时,每组留5只动物观察半月,观察动物停药后有否反应,其余亦断头处死。所有动物均按改良金氏法测定SGPT和SGOT,按二乙酰-肟法测定尿素氮,用碱性苦味酸盐法测定肌酐,按常规方法测定红、白细胞,血色素及血小板。计算100g体重所含的肝、肾、脾、睾丸、胸腺的重量。并取心、肝、脾、肾、肺作病理观察。

1. 外观症状的观察

各给药动物与对照组比较色泽、食欲及活动情况均无异常,在停药观察的动物中,亦未发现各给药组动物有异常反应。

2. 发酵虫草菌粉对大白鼠体重的影响

口服冬虫夏草菌粉对正常大白鼠体重的影响1-4个月见图1,4-8个月对大

白鼠的基本无影响。见图1。

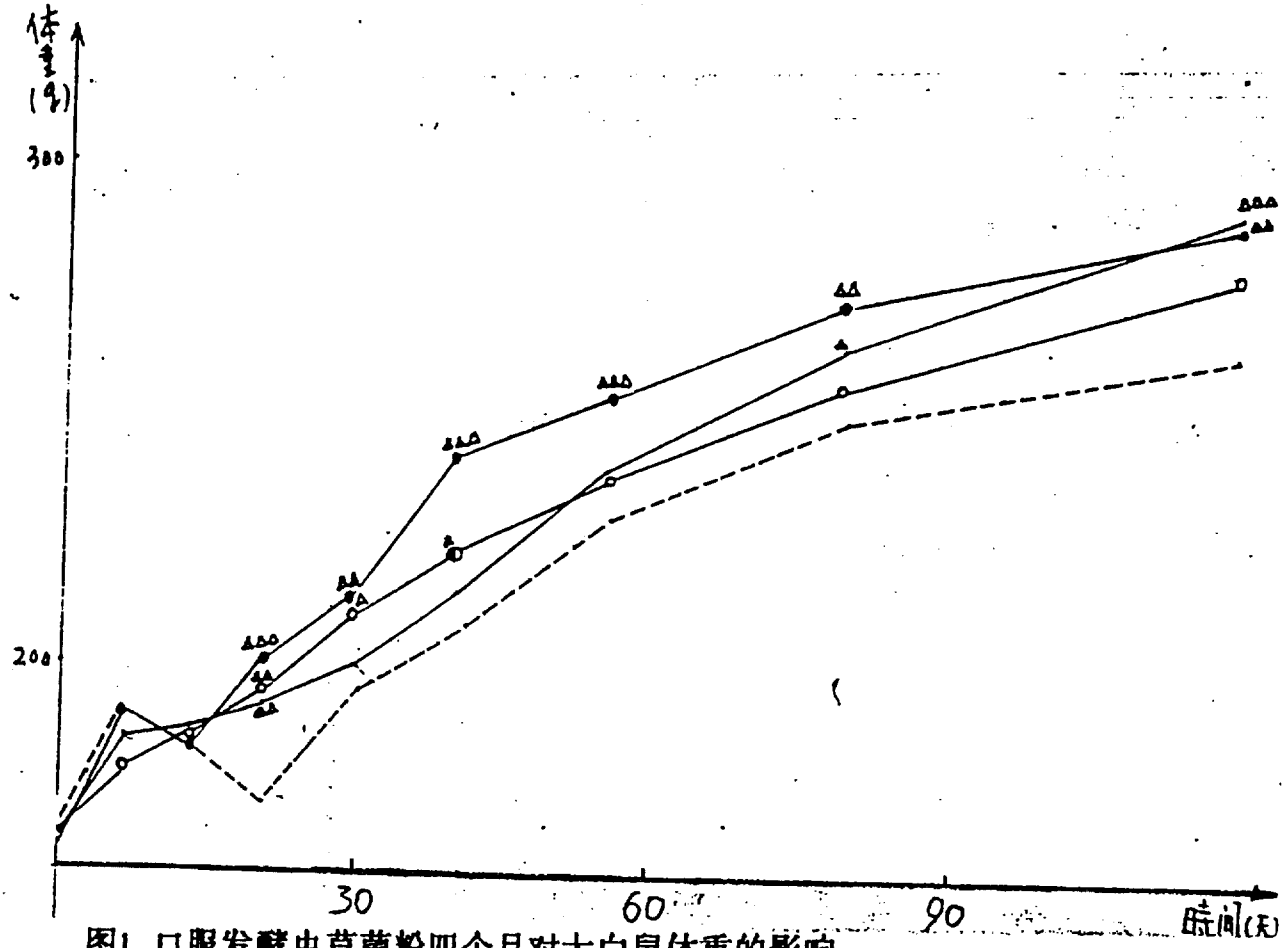


图1 口服发酵虫草菌粉四个月对大白鼠体重的影响

---------对照组 ———— 2.5g/kg/day组

——○ ——5g/kg/day组 ——● —— 7.5g/kg/day组

'△' '△△' '△△△' 分别表示与对照组比较P〈0.05、P<0.01、P〈0.001

从图1可以看出口服发酵虫草菌粉能显著促进大白鼠体重的增加，尤以高剂量B组更为明显。

3. 发酵虫草菌粉对大白鼠肝、肾功能的影响

口服发酵虫草菌粉对正常大白鼠肝(SGPT、SGOT)、肾(尿素氮BUN、肌酐Cr)功能的影响结果见表4。

表4. 口服发酵虫草菌粉对大白鼠肝、肾功能的影响($\bar{X}\pm SD$)

检测时间	剂量 (g/kg/day)	鼠数 (只)	SGPT (u%)	SGDT (u%)	Bun (mg%)	Cr (mg%)
给药四个月	7.5	20	155.3±27.4△△	187.5±42.2	25.88±11.28	1.79±0.83
	5	20	148.8±36.2△△	209.5±39.7	25.40±11.14	1.97±1.03△
	2.5	20	157.5±44△	220.6±39.3	19.20±8.49	1.62±0.64
	对照	20	193.0±39.2	200.6±22.0	19.83±7.88	2.41±1.7
给药八个月	7.5	18	147.1±32.4	202.2±78.0	15.88±2.91△△	1.37、0.57
	5	21	170.1±49.8△	202.1±51.5	13.94±2.43△△△	1.64±0.71
	2.5	18	137.9±26.8	183.8±58.6	12.58±2.00	1.39±0.85
	对照	16	177.0±88.2	209.2±45.6	16.71±2.82	1.32±0.48
停药半月	7.5	5	117.0±29.2	174.0±52.9	15.92±2.04	0.91±0.34
	5	5	165.7±33.7	199.6±55.0	17.40±4.01	1.14±0.55
	2.5	4	151.3±25.7	181.3±71.8	16.35±3.54	0.90±0.52
	对照	5	133.1±29.1	171.0±24.8	15.12±1.58	1.10±0.36

注: '△' '△△' '△△△'分别表示与本批对照组比较P〈0.05、P〈0.01、P〈 0.001 (以下同)

如表4所示口服发酵虫草菌粉四个月时，三个给药组的SGPT均显著低于对照组，低剂量组的肌酐也显著低于对照。给药八个月时， 低剂量组的SGPT，中、低剂量组的尿素氮均显著低于对照组。停药观察半月后SGPT 、SGOT、Bun及Cr各给药组与对照组比较均无显著性差异。

4. 发酵虫草菌粉对正常大白鼠血象的影响

口服发酵虫草菌粉对正常大白鼠血象的影响，结果见表5。

表6. 口服发酵虫草菌粉对大白鼠血象的影响

检测时间	剂量 (g/kg/day)	鼠数 (只)	RBC (×104/mm3)	WBC (×104/mm3)	Hb (g/dl)	platelet (×104/mm3
给药四个月	7.5	20	441.8±125.4	9.98±2.64	6.87±1.27	23.68±8.3
	5	20	417.5±70.4	8.13±2.34	6.54±1.36	27.19±8.17
	2.5	20	385.8±51.9	9.09±3.02	6.41±1.77	26.78±12.16
	对照	20	377.4±58.8	9.37±2.95	6.87±1.35	25.71±8.34
给药八个月	7.5	18	737.2±89.8	7.95±2.57	10.95±1.15	25.38±8.16
	5	21	709.5±128.3	7.99±2.34	10.59±0.81	25.64±6.93
	2.5	18	631.7±103.1	8.99±3.28	11.34±2.15	22.71±7.00
	对照	16	743.7±177.1	8.20±2.99	10.77±2.17	30.13±12.68
停药半月	7.5	5	884.6±65.9	7.85±1.68	10.14±0.90	21.60±2.26
	5	5	868.0±13.2	6.28±1.68	9.88±1.76	24.00±3.46
	2.5	4	851.8±44.4	6.58±1.32	10.99±1.22	26.13±1.22
	对照	5	953.9±93.7	7.52±2.21	12.04±2.71	20.08±5.57

如表6所示口服发酵虫草菌粉四个月，八个月或停药半月，各给药组的红细胞、白细胞、血色素及血小板与相对应时间的对照组比较均无显著性差异。

6. 发酵虫草菌粉对正常大白鼠肝、肾、脾、睾丸及胸腺重量的影响口服发酵虫草菌粉对正常大白鼠肝、肾、脾、睾丸及胸腺重量的影响，结果见表6。

表6 口服发酵虫草菌粉对大白鼠脏器重量的影响(X±SD)

检测时间	剂量 (g/kg/day)	鼠数 (只)	肝 (g/100g体重)	肾 (mg/100g体重)	脾 (mg/100g体重)	睾丸 (mg/100g体重)	胸腺 (mg/100g体重
给药	7.5	20	3.345±0.398	674±71	357±91	801±123 △	57±28
四个	5	20	3.233±0.715 △△	629±218	571±456	1441±913 △	76±34
月	2.5	20	2.646±0.440	581±85	365±140	988±185	65±42
	对照	20	3.114±0.390	618±148	321±61	704±202	58±26
给药	7.5	18	3.06±0.330	640±70	320±80	△△ 590±130	
八个	5	21	3.22±0.70	640±100	380±110	△△△ 845± 74	
月	2.5	18	2.75±0.40	620±80	370±110	△△△ 664± 187	
	对照	18	3.26±0.81	660±130	390±160	440±130	
停药	7.5	5	2.98±0.17	640±90	310±50		
半月	5	5	3.18±0.35	690±50	300±50		
	2.5	4	2.88±0.22	640±50	340±50		
	对照	5	2.88±0.40	630±50	380±190		

注：睾丸重量按实际动物只数计算

从表6可以看出：口服发酵虫草菌粉低剂量组肝重量显著小于对照组，口服四个月或口服八个月其睾丸重量各给药组均显著大于对照组。

6. 病理所见

各组动物的心、肝、脾、肺、肾均出现不同程度的充血及炎症反应，给药组与对照组比较无显著性差异，详细病理结果见表7。

表7. 口服冬虫夏草菌粉对大白鼠各脏器的病理变化

取材时间		给药四个月				给药八个月				停药半月			
剂量(g/kg/day)		对照	7.5	5	2.5	对照	7.5	5	2.5	对照	7.5	5	2.5
动物数(只)		20	20	20	20	10	10	10	10	5	5	5	4
心脏	充血	6	9	9	8	8	8	8	8	4	3	3	3
	炎性细胞浸润	2	2	2	1	7	9	8	6	4	3	4	3
	灶性坏死	0	0	0	0	0	0	0	0	1	1	0	0
肝脏	充血	3	5	12	3	9	10	9	10	5	3	3	2
	炎细胞浸润	7	5	7	4	9	10	10	10	5	4	4	3
	肝细胞浊肿	0	2	3	2	3	5	8	5	1	1	1	0
	肝细胞气球样变	0	1	2	0	0	0	1	0	0	0	0	0
	灶性坏死	1	2	3	2	0	0	1	0	0	0	0	1
	肝细胞脂变	0	0	0	0	1	0	3	0	0	0	0	0
	小胆管增生	0	1	4	0	0	1	1	2	1	0	0	1
脾脏	充血	5	4	5	5	3	4	6	8	3	3	0	0
	出血(灶性)	0	0	0	0	1	0	3	1	1	0	0	0
	白髓增生	0	1	1	1	0	1	1	0	0	0	0	0
	淋巴细胞减少	0	2	1	1	0	2	2	1	0	0	0	0
肺脏	充血	3	5	10	5	2	8	5	6	2	3	1	1
	水肿	1	2	2	1	2	0	0	0	0	0	0	0
	灶性出血	5	2	4	1	1	3	2	2	2	1	0	2
	炎变	5	7	7	7	8	7	5	0	5	5	5	4
肾脏	充血	7	6	7	10	6	8	8	6	3	3	4	4
	浊肿	3	3	4	7	3	2	3	3	2	3	4	1
	管型	0	0	0	0	0	0	0	0	0	0	0	0
	炎症	4	4	3	3	7	7	8	9	4	4	3	4
	间质出血	1	4	2	2	6	4	8	5	4	1	2	2
肾上腺		-	-	-	-	-	-	-	-	-	-	-	-

从表7可以看出各组动物均出现不同程度的病理变化，对照组与各给药组无显著性差异，给药各组的病理变化无剂量依赖性关系。结论：各给药组动物未见药物所致的病理损伤。

讨论和小结

冬虫夏草系一名贵中药，用于补虚、润肺、补肾、强身，也有用于治疗性欲减退，免疫功能低下等病症。本文主要报道的经深层发酵的冬虫夏草菌粉对大白鼠的慢性毒性试验，口服给药八个月。结果表明：口服给以发酵虫草菌粉能显著促进大白鼠体重的增加，至于口服发酵虫草菌粉能降低正常大白鼠的SGPT，是否也有降低因肝损害而造成的高SGPT的作用，同时在降SGPT时，尤以给药四个月时特别显著，三给药组的SGPT均显著低于对照组，尤以中、高剂量组更为明显。而在给药四个月取材时正是炎热的夏天，这是不是发酵虫草菌粉加强了大白鼠的御热能力，我们认为这些都值得更近一步的探讨。给药四个月时，低剂量组肌酐值显著低于对照组，高、中剂量组与对照组比较虽无显著性差异，但均比对照组低。给药八个月时，中、低剂量组的尿素氮均非常显著的低于对照组，这与上海中医学院报道的临床上用发酵虫草菌粉治疗肾功能衰竭的高肌酐、高尿素氮相符。本实验亦发现口服发酵虫草菌粉能显著增加雄性大白鼠睾丸的重量，这与临床上报道的用发酵虫草菌粉制剂治疗性欲减退有什么药理相关性，则也有待于药理功能的研究。病理上对照组及给药组某些脏器均出现一定的病理变化，但给药组与对照组比较无显著的病变，即给药组未发现药物所致的病理损伤。通过本试验我们认为：发酵虫草菌粉对正常大白鼠基本无毒性。

Ref. 01

TITLE:

Effects of cultural mycelium of Cordyceps sinensis (CMCs) on gentamycin-induced acute kidney injury in the rat

AUTHOR:

Ji H; Li Z; Po ZM; Chen F; Chen PS

AFFILIATION:

Dept. of Pharmacol., China Pharm. Univ., Nanjing 210009, China

SOURCE:

J. China Pharm. Univ. (Zhongguo Yaoke Daxue Xuebao); VOL 27 ISS 4 1996, P245-249, (REF 5)

SECONDARY SOURCE ID:

IPA/97/1119567

ABSTRACT:

IPA COPYRIGHT: ASHP To investigate the effects of cultural mycelium of Cordyceps sinensis on gentamicin (gentamycin) kidney damage, rats received 100 mg/kg of intraperitoneal gentamicin daily for 10 days alone and with cultural mycelium of C. sinensis; blood urine nitrogen, serum creatinine, urine protein, tissues, and kidney index were evaluated. Blood and urine indicators and tissue damage decreased significantly in the cultural mycelium treated group compared with controls.

REGISTRY NUMBERS:

1403-66-3

LANGUAGE:

CHI

eng SUMMARY

KEYWORDS:

Gentamicin
toxicity
C. sinensis
Cordyceps sinensis
kidney failure
gentamicin toxicity
Aminoglycosides
gentamicin(Aminoglycosides;P/T CLASS 8:12.02)
Gentamycin

Ref. 02

TITLE:

Effect of Cordyceps sinensis on the proliferation and differentiation of human leukemic U937 cells.

AUTHOR:

Chen YJ; Shiao MS; Lee SS; Wang SY

AFFILIATION:

Department of Medical Research, Veterans General Hospital-Taipei, Taiwan, Republic of China.

SOURCE:

Life Sci; VOL 60, ISS 25, 1997, P2349-59

SECONDARY SOURCE ID:

TOXBIB/97/338020

ABSTRACT:

Cordyceps sinensis is a herb medicine with antitumor activity capable of suppressing the growth of mouse Sarcoma 180 in vivo. In the present study, we have isolated polysaccharide fraction of Cordyceps sinensis (PSCS) and investigated its effect on the proliferation and differentiation of human leukemic U937 cells using an in vitro culture system. Our results showed that the conditioned medium from PSCS (10 microg/ml)-stimulated blood mononuclear cells (PSCS-MNC-CM) had an activity that could significantly inhibit the proliferation of U937 cells resulting in a growth inhibition rate of 78-83%. Furthermore, PSCS-MNC-CM treatment induced about 50% of the cells differentiating into mature monocytes/macrophages expressing nonspecific esterase (NSE) activity and the surface antigens of CD11b, CD14, and CD 68. Yet, the differentiated U937 cells also had functions of phagocytosis and superoxide production. However, PSCS alone or normal MNC-CM had no such effects. The levels of interferon (IFN)-gamma, tumor necrosis factor (TNF)-alpha, and interleukin (IL)-1 were very low in normal MNC-CM, and they were greatly increased in MNC-CM prepared with PSCS stimulation. Antibody neutralization studies further revealed that the tumoricidal and differentiating effects of PSCS-MNC-CM were mainly derived from the elevated cytokines, especially IFN-gamma and TNF-alpha. These two cytokines acted synergistically on inhibiting cell growth and inducing differentiation of the target U937 cells.

MAIN MESH

MESH HEADINGS:

Antineoplastic Agents, Phytogenic/*PHARMACOLOGY
Monocytes/*DRUG EFFECTS
Plant Extracts/*PHARMACOLOGY
*Plants, Medicinal
*Plants, Medicinal/CHEMISTRY

ADDITIONAL MESH HEADINGS:

Antigens, Neoplasm/BIOSYNTHESIS
Antineoplastic Agents, Phytogenic/ISOLATION & PURIF
Cell Differentiation/DRUG EFFECTS
Cell Division/DRUG EFFECTS
Comparative Study
Culture Media
Cytokines/METABOLISM
Human
Leukemia
Leukocytes, Mononuclear/METABOLISM
Monocytes/CYTOLOGY
Neutralization Tests
Plant Extracts/ISOLATION & PURIF
Polysaccharides/ISOLATION & PURIF
Polysaccharides/PHARMACOLOGY
Support, Non-U.S. Gov't
Tumor Cells, Cultured

PUBLICATION TYPES: JOURNAL ARTICLE

REGISTRY NUMBERS:

0 (Antigens, Neoplasm)
0 (Antineoplastic Agents, Phytogenic)
0 (Culture Media)
0 (Cytokines)
0 (Plant Extracts)
0 (Polysaccharides)

LANGUAGE: Eng

TITLE:

Cordyceps sinensis as an immunomodulatory agent.

AUTHOR:

Kuo YC; Tsai WJ; Shiao MS; Chen CF; Lin CY

AFFILIATION:

National Research Institute of Chinese Medicine, Veterans General Hospital, Taipei, Taiwan.

SOURCE:

Am J Chin Med; VOL 24, ISS 2, 1996, P111-25

SECONDARY SOURCE ID:

TOXBIB/97/028655

ABSTRACT:

Effects of various fractions of methanol extracts from fruiting bodies of Cordyceps sinensis on the lymphoproliferative response, natural killer (NK) cell activity, and phytohemagglutinin (PHA) stimulated interleukin-2 (IL-2) and tumor necrosis factor-alpha (TNF-alpha) production on human mononuclear cells (HMNC) were studied. Two of the 15 column fractions (CS-36-39 and CS-48-51) significantly inhibited the blastogenesis response (IC50 = 71.0 +/- 3.0 and 21.7 +/- 2.0 micrograms/ml, respectively), NK cell activity (IC50 = 25.0 +/- 2.5 and 12.9 +/- 5.8 micrograms/ml, respectively) and IL-2 production of HMNC stimulated by PHA (IC50 = 9.6 +/- 2.3 and 5.5 +/- 1.6 micrograms/ml, respectively). TNF-Alpha production in HMNC cultures was also blocked by CS-36-39 and CS-48-51 (IC50 = 2.7 +/- 1.0 and 12.5 +/- 3.8 micrograms/ml, respectively). These results indicated that neither CS-36-39 nor CS-48-51 was cytotoxic on HMNC, and that immunosuppressive ingredients are contained in Cordyceps sinensis.

HEADINGS:

Adjuvants, Immunologic/*PHARMACOLOGY
Interleukin-2/*BIOSYNTHESIS
Killer Cells, Natural/*DRUG EFFECTS
Leukocytes, Mononuclear/*DRUG EFFECTS
Plant Extracts/*PHARMACOLOGY
Tumor Necrosis Factor/*BIOSYNTHESIS

ADDITIONAL MESH

HEADINGS:

Adjuvants, Immunologic/METABOLISM
Adjuvants, Immunologic/THERAPEUTIC USE
Cell Count/DRUG EFFECTS
Cell Division/DRUG EFFECTS
Cell Line
Cells, Cultured
Chromatography, Liquid
Fractionation
Human
Killer Cells, Natural/CYTOLOGY
Lethal Dose 50
Leukocytes, Mononuclear/CYTOLOGY
Leukocytes, Mononuclear/METABOLISM
Lymphocyte Transformation/DRUG EFFECTS
Phytohemagglutinins/PHARMACOLOGY
Plant Extracts/METABOLISM
Plant Extracts/THERAPEUTIC USE
Support, Non-U.S. Gov't
Taiwan

PUBLICATION TYPES:

JOURNAL ARTICLE

REGISTRY NUMBERS:

0 (Adjuvants, Immunologic)
0 (Interleukin-2)
0 (Phytohemagglutinins)
0 (Plant Extracts)
0 (Tumor Necrosis Factor)

LANGUAGE:

Eng

Ref. 04

TITLE:

Amelioration of cyclosporin nephrotoxicity by Cordyceps sinensis in kidney-transplanted recipients [letter]

AUTHOR:

Xu F; Huang JB; Jiang L; Xu J; Mi J

SOURCE:

Nephrol Dial Transplant; VOL 10, ISS 1, 1995, P142-3

SECONDARY SOURCE ID:

TOXBIB/95/240916

MAIN MESH HEADINGS:

Cyclosporine/*ADVERSE EFFECTS
Drugs, Chinese Herbal/*THERAPEUTIC USE
Kidney/*DRUG EFFECTS
Kidney Diseases/*PREVENTION & CONTROL
*Kidney Transplantation

ADDITIONAL MESH HEADINGS:

Cyclosporine/THERAPEUTIC USE
Drug Therapy, Combination
Human
Kidney Diseases/CHEMICALLY INDUCED

PUBLICATION TYPES:

LETTER

REGISTRY NUMBERS:

0 (Drugs, Chinese Herbal)
59865-13-3 (Cyclosporine)

LANGUAGE:

Eng

TITLE:

Growth inhibitors against tumor cells in Cordyceps sinensis other than cordycepin and polysaccharides.

AUTHOR:

Kuo YC; Lin CY; Tsai WJ; Wu CL; Chen CF; Shiao MS

AUTHOR AFFILIATION:

National Research Institute of Chinese Medicine, Veterans General Hospital, Taipei, Taiwan, Republic of China.

SOURCE:

Cancer Invest; VOL 12, ISS 6, 1994, P611-5

SECONDARY SOURCE ID:

TOXBIB/95/086884

ABSTRACT:

Cordyceps sinensis is a parasitic fungus that has been used as a Chinese medicine for a long time. In the present study, inhibitory effects of crude methanolic extracts of C. sinensis fruiting bodies on various tumor cell lines were demonstrated. The crude methanolic extracts were fractionated into 15 fractions by silica gel column chromatography. Two of the 15 fractions (CS-36-39 and CS-48-51) significantly inhibited the growth of K562, Vero, Wish, Calu-1, and Raji tumor cell lines. The inhibitory activities were not due to the polysaccharides, which have been removed in the extracting process. The polarities of these two fractions indicated that they were different from that of cordycepin. Therefore, it is suggested that tumor cell growth inhibitors, other than cordycepin and polysaccharides, are contained in C. sinensis.

MAIN MESH HEADINGS:

Antineoplastic Agents/*PHARMACOLOGY
Ascomycetes/*CHEMISTRY
Deoxyadenosines/*PHARMACOLOGY
Growth Inhibitors/*PHARMACOLOGY
Mutagens/*PHARMACOLOGY
Neoplasms, Experimental/*DRUG THERAPY
Polysaccharides/*PHARMACOLOGY

ADDITIONAL

HEADINGS:

Animal
Cell Division/DRUG EFFECTS
Cercopithecus aethiops
Drug Screening Assays, Antitumor
Human
Support, Non-U.S. Gov't
Tumor Cells, Cultured/DRUG EFFECTS
Vero Cells

PUBLICATION TYPES:

JOURNAL ARTICLE

REGISTRY NUMBERS:

0 (Antineoplastic Agents)
0 (Deoxyadenosines)
0 (Growth Inhibitors)
0 (Mutagens)
0 (Polysaccharides)
73-03-0 (cordycepin)

LANGUAGE:

Eng

TITLE:

[Amelioration of aminoglycoside nephrotoxicity by Cordyceps sinensis in old patients]

AUTHOR:

Bao ZD; Wu ZG; Zheng F

AUTHOR AFFILIATION:

Dept. of Geriatrics, Jinling Hospital, Nanjing.

SOURCE:

Chung Kuo Chung Hsi I Chieh Ho Tsa Chih; VOL 14, ISS 5, 1994, P271-3, 259

SECONDARY SOURCE ID:

TOXBIB/95/037531

ABSTRACT:

The protective effect on aminoglycoside nephrotoxicity by Cordyceps sinensis in the old patient was observed. 21 old patients were randomly divided into two groups. Each group received amikacin sulfate for 6 days. In addition, group A was administered Cordyceps sinensis for 7 days and group B was given placebo. The results revealed that group A developed less prominent nephrotoxicity compared with group B as evidenced by less urinary nephro-aminoglycosidase (NAGase) and beta-microglobulin in group A than those in Group B. These results suggested that Cordyceps sinensis exerted a protective effect on aminoglycoside nephrotoxicity in the old patients.

MAIN MESH HEADINGS:

Amikacin/*ADVERSE EFFECTS
Drugs, Chinese Herbal/*THERAPEUTIC USE
Kidney/*DRUG EFFECTS
Kidney Diseases/*PREVENTION & CONTROL

ADDITIONAL MESH

HEADINGS:

beta 2-Microglobulin/URINE
Acetylglucosaminidase/URINE
Aged
Animal
Ascomycetes
Bronchitis/DRUG THERAPY
Bronchitis/URINE
English Abstract
Female
Human
Kidney Diseases/CHEMICALLY INDUCED
Male
Middle Age
Moths
Pneumonia/DRUG THERAPY
Pneumonia/URINE

PUBLICATION TYPES:

CLINICAL TRIAL
JOURNAL ARTICLE
RANDOMIZED CONTROLLED TRIAL

REGISTRY NUMBERS:

EC 3.2.1.30 (Acetylglucosaminidase)
0 (beta 2-Microglobulin)
0 (Drugs, Chinese Herbal)
37517-28-5 (Amikacin)

LANGUAGE:

Chi

TITLE:

[Cordyceps sinensis in protection of the kidney from cyclosporine A nephrotoxicity]

AUTHOR:

Zhao X; Li L

AUTHOR AFFILIATION:

Renal Department, Zhangzhen Hospital, Shanghai.

SOURCE:

Chung Hua I Hsueh Tsa Chih; VOL 73, ISS 7, 1993, P410-2, 447

SECONDARY SOURCE ID:

TOXBIB/94/123156

ABSTRACT:

To explore the protective effect of cordyceps sinensis (CS) on cyclosporine A nephro-toxicity (CsA-Nx) and the possible mechanism, we studied the kidney changes induced by CsA in rats by light microscopy (LM), electronic microscopy (EM) and morphometrical analysis. At the 15th day after receiving CsA, prominent vacuolation and necrosis were noted microscopically in proximal tubular cells and mitochondria swelling electronmicroscopically. Morphometrical study showed that the epithelial areas of both proximal and distal tubules in the CS group were larger than those of the control group. There were obvious vacuolation (90%) and necrosis in proximal tubular cells at different stages of chronic CsA-Nx. Interstitial edema with mild fibrosis was observed. Mitochondria abnormality was seen electronmicroscopically. Morphometrical analysis showed that the epithelial cell areas of tubules and glomeruli were smaller in the CsA group than those in the CS group. Both acute and chronic experiments showed that CS could protect the kidney from CsA-Nx and ameliorate the glomerular and interstitial injuries.

MAIN MESH HEADINGS:

Cyclosporine/*TOXICITY
Drugs, Chinese Herbal/*PHARMACOLOGY
Kidney/*DRUG EFFECTS

ADDITIONAL MESH

HEADINGS:

Animal
Ascomycetes
English Abstract
Kidney/ULTRASTRUCTURE
Kidney Tubules/DRUG EFFECTS
Kidney Tubules/ULTRASTRUCTURE
Lepidoptera
Male
Rats
Rats, Sprague-Dawley

PUBLICATION TYPES:

JOURNAL ARTICLE

REGISTRY NUMBERS:

0 (Drugs, Chinese Herbal)
59865-13-3 (Cyclosporine)

LANGUAGE:

Chi

TITLE:

Effect of Cordyceps sinensis on erythropoiesis in mouse bone marrow.

AUTHOR:

Li Y; Chen GZ; Jiang DZ

AUTHOR AFFILIATION:

Institute of the Integration of Western and Traditional Chinese Medicine, Hunan Medical University, Changsha.

SOURCE:

Chin Med J (Engl); VOL 106, ISS 4, 1993, P313-6

SECONDARY SOURCE ID:

TOXBIB/93/314403

ABSTRACT:

The effect of Cordyceps sinensis crystal (CS-Cr) on stimulating proliferation of erythroid progenitor cells (CFU-E and BFU-E) in LACA mouse marrow in vivo and in vitro by methyl cellulose gel culture system is reported. The numbers of CFU-E and BFU-E were increased after 5 consecutive daily treatment with 100, 150 and 200 mg/kg of CS-Cr with a peak at 150 mg/kg. Higher doses (> 150 mg/kg) of CS-Cr resulted in a reduction of the peak of CFU-E and BFU-E and then, the numbers returned to the control level with increased doses. The cytosine arabinoside (Ara-C) suicide test showed significant increases in the percentage of CFU-E and BFU-E in S-phase after CS-Cr treatment. Pretreatment of mice with CS-Cr could protect CFU-E and BFU-E against the cytotoxic agent--harringtonine. Addition of CS-Cr to culture system also promoted the generation of CFU-E and BFU-E at concentrations of 150-200 micrograms/ml in vitro. With a liquid culture technique, a stimulatory action of CS-Cr on fibroblast colony-forming units (CFU-F) proliferation was seen in vivo and in vitro.

MAIN MESH HEADINGS:

Drugs, Chinese Herbal/*PHARMACOLOGY
Erythroid Progenitor Cells/*DRUG EFFECTS
Erythropoiesis/*DRUG EFFECTS

ADDITIONAL MESH

HEADINGS:

Animal
Ascomycetes
Bone Marrow/CYTOLOGY
Cell Division/DRUG EFFECTS
Erythroid Progenitor Cells/CYTOLOGY
Fibroblasts/DRUG EFFECTS
Harringtonines/ADVERSE EFFECTS
Lepidoptera
Male
Mice
Stem Cells/DRUG EFFECTS

PUBLICATION TYPES:

JOURNAL ARTICLE

REGISTRY NUMBERS:

0 (Drugs, Chinese Herbal)
0 (Harringtonines)

LANGUAGE:

Eng

TITLE:

[Relationship between illumination and growth of the stroma of Cordyceps sinensis (Berk.) Sacc]

AUTHOR:

Li L; Yin DH; Tang CH; Fu SQ

AFFILIATION:

Sichuan Institute of Chinese Materia Medica, Chongqing.

SOURCE:

Chung Kuo Chung Yao Tsa Chih; VOL 18, ISS 2, 1993, P80-2, 124-5

SECONDARY SOURCE ID:

TOXBIB/93/312495

ABSTRACT:

The growth of the stroma of Cordyceps sinensis largely depends upon the illumination in its growth period. By increasing illumination time and light intensity, its growth height can be controlled, growth rate slowed down and the corrosion time of larva body of host insect prolonged. Ultraviolet light is able to affect the growth of stroma too. The stroma also shows the strong phototaxis in its growth period. The arrangement and formation of the perithecium vary with the illumination.

MAIN MESH HEADINGS:

Ascomycetes/*GROWTH & DEVELOPMENT
*Lighting
Plants, Medicinal/*GROWTH & DEVELOPMENT

ADDITIONAL MESH HEADINGS:

Drugs, Chinese Herbal
English Abstract

PUBLICATION TYPES:

JOURNAL ARTICLE

REGISTRY NUMBERS:

0 (Drugs, Chinese Herbal)

LANGUAGE:

Chi

Ref. 10

TITLE:

Observation on short term curative effect of cultured Cordyceps sinensis (Berk.) Sacc. mycelia for chronic hepatitis B

AUTHOR:

Zhou LM; Yang WZ; Xu YM; Zhu QY

AUTHOR AFFILIATION:

Shanxi Liver Dis. Res. Cooperation Group, Taiyuan 030001, Shanxi, China

SOURCE:

Bull. Chin. Mater. Med.; VOL 15 ISS Jan 1990, P53-55, (REF 5)

SECONDARY SOURCE ID:

IPA/91/934152

ABSTRACT:

IPA COPYRIGHT: ASHP A discussion of 33 cases of chronic hepatitis B in which cultured Cordyceps sinensis mycelia improved protein metabolism and corrected the inversion of albumin and gamma globulin is presented.

LANGUAGE:

CHI
eng SUMMARY

KEYWORDS:

Cordyceps sinensis
hepatitis B
therapy
Folk medicine
hepatitis B therapy
HUMAN

Ref. 11

TITLE:

Comparative studies of chemical constituents between Huokesi Chongcao (Cordyceps hawkesii) and Dongchongxicao (Cordyceps sinensis)

AUTHOR:

Guo XY; Zhang JW; Zhang ZS

AFFILIATION:

Guiyang Coll. of Traditional Chinese Med., Guiyang 550000 Gueizhow, China

SOURCE:

Chin. Tradit. Herbal Drugs; VOL 21 ISS Mar 1990, P109-110, (REF 3)

SECONDARY SOURCE ID:

IPA/91/934175

ABSTRACT:

IPA COPYRIGHT: ASHP Comparative chemical analyses were carried out on samples of Cordyceps sinensis and C. hawkesii. Results showed basically identical amino acid, vitamin and trace element contents. Qualitative tests showed similar sterol and alkaloid contents as well.

LANGUAGE:

CHI
eng SUMMARY

KEYWORDS:

Cordyceps sinensis
constituents
comparison, C. hawkesii
Cordyceps hawkesii
comparison, C. sinensis
Sterols
Cordyceps species
C. sinensis, C. hawkesii, comparison
Alkaloids
Amino acids
Vitamins
Elements
trace
C. sinensis, C. hawkesii
Huokesi Chongcao
Dongchongxicao

Ref. 12

TITLE:

Anti-arrhythmic effects of Cordyceps sinensis (Berk.) Sacc

AUTHOR:

Mei QB; Tao JY; Gao SB; Xu GH; Vhrn LM; et al

AFFILIATION:

Dept. of Pharmacol., 4th Military Med. Univ., Ziann, China

SOURCE:

J. Chin. Mater. Med. (Zhongguo Zhongyao Zazhi); VOL 14 ISS Oct 1989, P616-618, (REF 5)

SECONDARY SOURCE ID:

IPA/90/921223

ABSTRACT:

IPA COPYRIGHT: ASHP Rat and guinea pig studies demonstrating the anti-arrhythmic effects of alcohol extracts of Cordyceps sinensis are presented. Extracts counteracted aconitine induced arrhythmias in rats and decreased the contractility of isolated papillary muscle in guinea pigs.

LANGUAGE:

CHI

KEYWORDS:

Cordyceps sinensis
arrhythmia
extracts, effects, animals
Extracts
effects, arrhythmia, animals

Ref. 13

TITLE:
Studies of water-soluble constituents of Cordyceps sinensis (Berk.) Sacc.--nucleosides

AUTHOR:
Xu WH; Xue Z; Ma JM

AUTHOR AFFILIATION:
Inst. of Materia Medica, Chinese Acad. of Med. Sci., Beijing, China

SOURCE:
Bull. Chin. Mater. Med.; VOL 13 ISS Apr 1988, P226-228, (REF 5)

SECONDARY SOURCE ID:
IPA/90/892179

ABSTRACT:
IPA COPYRIGHT: ASHP Xanthosine, thymine, uracil and xanthine were isolated from the stromata of Cordyceps sinensis collected from Tibet, with xanthine as the major constituent.

REGISTRY NUMBERS:
146-80-5; 65-71-4; 66-22-8; 69-89-6

LANGUAGE:
CHI
eng SUMMARY

KEYWORDS:
Xanthosine
Cordyceps sinensis
isolation, identification
Thymine
Uracil
Xanthine
constituents
stromata, isolation

TITLE:
Influence of Cordyceps sinensis (Berk.) Sacc. and its cultured mycelia on murine platelets and immune organs after irradiation with 60Co gamma-rays

AUTHOR:
Liu XP; Chen DM; Zhang SL; Sun YH
AUTHOR AFFILIATION:
Inst. of Naval Med., Shanghai, China

SOURCE:
Bull. Chin. Mater. Med.; VOL 13 ISS Apr 1988, P236-238, (REF 7)
SECONDARY SOURCE ID:
IPA/90/892180

ABSTRACT:
IPA COPYRIGHT: ASHP The protective effects of Cordyceps sinensis and its cultured mycelia extracts on the thrombocytopenia and splenatrophy of mice after cobalt irradiation were proven by electron microscopic observations as described.

LANGUAGE:
CHI
eng SUMMARY
KEYWORDS:
Cordyceps sinensis
extracts
murine platelet effects

Ref. 15

TITLE:
Studies on determination of nucleosides and their bases in Cordyceps sinensis

AUTHOR:
Zhang GD; Li YX

AUTHOR AFFILIATION:
Inst. of Materia Med., Chinese Acad. of Med. Sci., Beijing, People's Republic of China

SOURCE:
Chin. J. Pharm. Anal. (Yaowu Fenxi Zazhi); VOL 7 ISS Jan 1987, P6-8, (REF 7)

SECONDARY SOURCE ID:
IPA/88/778259

ABSTRACT:
IPA COPYRIGHT: ASHP Uracil, uridine, adenine and adenosine were determined by thin layer chromatographic methods with densitometric and ultraviolet spectrophotometric detection in cultured and natural Cordyceps sinensis.

REGISTRY NUMBERS:
73-24-5; 58-61-7; 66-22-8; 58-96-8

LANGUAGE:
CHI
eng SUMMARY

KEYWORDS:
Adenine
Cordyceps sinensis
analysis
Adenosine
Uracil
Uridine
nucleosides
Chromatography, thin layer
C. sinensis
Densitometry
Spectrometry, ultraviolet

TITLE:

Studies on pharmacological effects of alcohol extract and filtrate of fermentation of chongcao (Cordyceps sinensis Sacc.) on cardiovascular system

AUTHOR:

Lou YQ; Liao XM; Lu YC

AUTHOR AFFILIATION:

Dept. of Pharmacol., Coll. of Basic Med. Sci., Beijing Med. Univ., Beijing, China

SOURCE:

Chin. Tradit. Herbal Drugs; VOL 17 ISS May 1986, P209-213, (REF 7)

SECONDARY SOURCE ID:

IPA/87/742196

ABSTRACT:

IPA COPYRIGHT: ASHP The pharmacological effects of the alcohol extract and the fermentation filtrate of chongcao (Cordyceps sinensis Sacc.) on the cardiovascular system were investigated in mice, rabbits and rats. Chongcao extract and filtrate exerted a minus frequency effect on the right atrium in rabbits and mice, reduced the elevation of oxygen consumption induced by isoprenaline, and improved the body's ability to endure oxygen shortage. The extract and filtrate also prevented myocardial infarction induced by thyroxine and noradrenaline in rats, antagonized the platelet aggregation of rabbit blood caused by collagen and ADP sodium salts, prolonged the formation of arrhythmia induced by aconitine and reduced the duration of arrhythmia caused by aconitine and barium chloride.

LANGUAGE:

CHI

KEYWORDS:

Cordyceps sinensis
extracts
cardiovascular effects, animals
Cardiac drugs
extracts, animals
Chongcao

Ref. 17

TITLE:
Studies on pharmacological action of natural and cultured Qinghai chongcao (Cordyceps sinensis Sacc.). Part 2. Effect on function of immunity

AUTHOR:
Tang RJ; Wang ZP; Min ZH; Zhang J
AUTHOR AFFILIATION:
Qinghai Inst. for Drug Control, Xining, Qinghai, China

SOURCE:
Chin. Tradit. Herbal Drugs; VOL 17 ISS May 1986, P214-216, (REF 8)
SECONDARY SOURCE ID:
IPA/87/742197

ABSTRACT:
IPA COPYRIGHT: ASHP The pharmacological effects of natural and cultured Qinghai chongcao (Cordyceps sinensis Sacc.) on the immunity function were studied. The natural and cultured chongcao could improve the phagocytosis of single-core phagocytes in mice and regulate the immune functions in body fluid. It was also found that chongcao increased the immune hemolysis activity of serum hemolysin in mice, which was in an inhibitory state of immunity after the administration of hydrocortisone, and improved the transformation of T-lymphocytes.

LANGUAGE:
CHI
KEYWORDS:
Cordyceps sinensis
effects
pharmacological, immune system, animals
Immunotherapy
pharmacology, animals
Chongcao

Ref. 18

TITLE:
Studies on antitumor activity of Cordyceps sinensis and cultured Cordyceps mycelia

AUTHOR:
Du DJ; Zhen QT; Lan CQ; Xie DC; Wan XP

AUTHOR AFFILIATION:
Div. of Pharmacol., Sichuan Inst. of Traditional Chinese Med., Chongqing, Sichuan, China

SOURCE:
Bull. Chin. Mater. Med.; VOL 11 ISS Jul 1986, P435-438, (REF 8)

SECONDARY SOURCE ID:
IPA/87/742305

ABSTRACT:
IPA COPYRIGHT: ASHP Studies on antitumor activity of Cordyceps sinensis (I) and cultured Cordyceps mycelia (II) were carried out. The extracts of I and II were found to inhibit the growth of S-180 tumor in mice, and to increase the effect of cyclophosphamide. The extract of I also enhanced the effect of mercaptopurine while the extract of II showed no such action.

LANGUAGE:
CHI

KEYWORDS:
Cordyceps sinensis
extracts
antineoplastic effects, mice
Cordyceps mycelia
cultures
Antineoplastic agents
extracts, effects, mice
mycelia, antineoplastic effects, mice

Ref. 19

TITLE:
Comparison of treatment chronic renal failure 30 cases by hyphae of cultured and natural Cordyceps sinensis

AUTHOR:
Chen YP; Liu WZ; Shen LM; Xu SN
AUTHOR AFFILIATION:
Longhua Hosp., Shanghai Coll. of Traditional Chinese Med., Shanghai, China

SOURCE:
Chin. Tradit. Herbal Drugs; VOL 17 ISS Jun 1986, P256-258, (REF 8)
SECONDARY SOURCE ID:
IPA/87/742083

ABSTRACT:
IPA COPYRIGHT: ASHP Experiments were carried out for comparison of the treatment of chronic renal failure by hyphae of cultured and natural Cordyceps sinensis. There were significant differences between the levels of creatinine, creatinine clearance, blood urea nitrogen, hemoglobin, red blood cell counts and the ratio of lymphocyte transformation before and after the treatment, while the therapeutic effectiveness of cultured and natural Cordyceps showed no differences.

LANGUAGE:
CHI
KEYWORDS:
Cordyceps sinensis
kidney failure
chronic, therapy
hyphae, chronic, therapy

TITLE:
[Mechanisms and therapeutic effect of Cordyceps sinensis (CS) on aminoglycoside induced acute renal failure (ARF) in rats]

AUTHOR:
Zhen F; Tian J; Li LS
AUTHOR
AFFILIATION:
Dept. of Nephrology, Jinling Hospital, Nanjing.

SOURCE:
Chung Kuo Chung Hsi I Chieh Ho Tsa Chih; VOL 12, ISS 5, 1992, P288-91, 262
SECONDARY
SOURCE ID:
TOXBIB/93/005456

ABSTRACT:
Nephrotoxic ARF model of rat was induced by IP injection of either Gentamycin or Kanamycin and treated with CS. The results of study showed that the simultaneous administration of CS with Gentamycin could protect the proximal tubular cells from Gentamycin toxicity and the use of CS after the establishment of Kanamycin nephrotoxic ARF could prompt an earlier recovery from ARF as compared with the control group. The possible mechanisms of CS on ARF include: (1) protecting tubular cell sodium pump activity; (2) attenuating tubular cell lysosome overfunction stimulated by phagocytosis of aminoglycoside; (3) decreasing tubular cell lipoperoxidation in response to toxic injury.

MAIN MESH
HEADINGS:
Drugs, Chinese Herbal/*THERAPEUTIC USE
Kidney Failure, Acute/*DRUG THERAPY
ADDITIONAL
MESH
HEADINGS:
Animal
English Abstract
Gentamicins
Kanamycin
Kidney/ULTRASTRUCTURE
Kidney Failure, Acute/CHEMICALLY INDUCED
Lysosomes/DRUG EFFECTS
Male
Na(+)-K(+)-Exchanging ATPase/DRUG EFFECTS
Rats
Rats, Inbred Strains
PUBLICATION
TYPES:
JOURNAL ARTICLE
REGISTRY
NUMBERS:
0 (Drugs, Chinese Herbal)
0 (Gentamicins)
59-01-8 (Kanamycin)
LANGUAGE:
Chi

TITLE:
[Pharmacological study on Cordyceps sinensis (Berk.) Sacc. and ze-e Cordyceps]

AUTHOR:
Lei J; Chen J; Guo C
AUTHOR AFFILIATION:
Guangdong Institute of Materia Medica, Guangzhou.

SOURCE:
Chung Kuo Chung Yao Tsa Chih; VOL 17, ISS 6, 1992, P364-6, 384
SECONDARY SOURCE ID:
TOXBIB/93/039626

ABSTRACT:
The Ze-e Cordyceps is similar to the Cordyceps sinensis in such pharmacological actions as calming, enduring hypoxia, dilating trachea, male sex hormone action, antiphlogistic and toxicity, etc. It is thus suggested that the Ze-e Cordyceps may be used place of the Cordyceps sinensis in clinical practice.

MAIN MESH HEADINGS:
Ascomycetes/*CHEMISTRY
Drugs, Chinese Herbal/*PHARMACOLOGY
Lepidoptera/*CHEMISTRY
ADDITIONAL MESH HEADINGS:
Animal
Anoxia/DRUG THERAPY
Comparative Study
Drugs, Chinese Herbal/TOXICITY
Drugs, Chinese Herbal/THERAPEUTIC USE
English Abstract
Female
Guinea Pigs
Inflammation/DRUG THERAPY
Male
Mice
Muscle Relaxation/DRUG EFFECTS
Muscle, Smooth/DRUG EFFECTS
Sleep/DRUG EFFECTS
Trachea
PUBLICATION TYPES:
JOURNAL ARTICLE
REGISTRY NUMBERS:
0 (Drugs, Chinese Herbal)
LANGUAGE:
Chi

TITLE:

[Immunosuppressive effect of cultured Cordyceps sinensis on cellular immune response]

AUTHOR:

Zhu XY; Yu HY

AUTHOR AFFILIATION:

Beijing Friendship Hospital.

SOURCE:

Chung Hsi I Chieh Ho Tsa Chih; VOL 10, ISS 8, 1990, P485-7, 454

SECONDARY SOURCE ID:

TOXBIB/91/004434

ABSTRACT:

The immunosuppressive effect of cultured Cordyceps sinensis (Bei Lin Capsule) was studied in vitro and in vivo. When the drug was added from 0.6 mg/ml to 5 mg/ml a significant dose-dependent inhibition effect was shown in the following immune reactions of mice (P less than 0.05-0.01): phagocytic function of peripheral blood leucocytes assayed by chemiluminescence; mitogenic response of spleen lymphocytes to Con A; mixed lymphocyte culture and LPS induced interleukin-1 release of macrophages. The survival rate of mice spleen lymphocytes cultured with Cordyceps sinensis 5 mg/ml in 37 degrees C 5% CO2 for 5 days was more than 80%. Cordyceps sinensis 4 g/kg daily significantly prolonged the mice skin allograft survival time (12.7 +/- 2.2 days v.s. 8.3 +/- 0.7 days in the control, P less than 0.01) and its immunosuppressive effect was close to that of Cyclosporin A 5 mg/kg daily on skin allograft.

MAIN MESH HEADINGS:

Drugs, Chinese Herbal/*PHARMACOLOGY
*Immunosuppressive Agents
Lymphocyte Transformation/*DRUG EFFECTS
Phagocytosis/*DRUG EFFECTS
Plants, Medicinal/*GROWTH & DEVELOPMENT

ADDITIONAL MESH HEADINGS:
- Animal
- English Abstract
- Graft Survival/DRUG EFFECTS
- Immunity, Cellular/DRUG EFFECTS
- Interleukin-1/BIOSYNTHESIS
- Macrophages/IMMUNOLOGY
- Mice
- Mice, Inbred BALB C
- Mice, Inbred C57BL
- Mice, Inbred DBA

PUBLICATION TYPES:
- JOURNAL ARTICLE

REGISTRY NUMBERS:
- 0 (Drugs, Chinese Herbal)
- 0 (Immunosuppressive Agents)
- 0 (Interleukin-1)

LANGUAGE:
- Chi

TITLE:

Augmentation of various immune reactivities of tumor-bearing hosts with an extract of *Cordyceps sinensis*.

AUTHOR:

Yamaguchi N; Yoshida J; Ren LJ; Chen H; Miyazawa Y; Fujii Y; Huang YX; Takamura S; Suzuki S; Koshimura S; et al

AUTHOR AFFILIATION:

Department of Serology, Kanazawa Medical University, Ishikawa, Japan.

SOURCE:

Biotherapy; VOL 2, ISS 3, 1990, P199-205

SECONDARY SOURCE ID:

TOXBIB/91/001364

ABSTRACT:

In order to enhance general reactivity of immune system in the tumor-bearing host, we employed extract of Cordyceps sinensis (CSE) as a biological response modifier. Cordyceps sinensis is an interesting material produced by a kind of mushroom parasitic to larval moths and was used to hasten recovery from exhaustion in ancient China. In this experiment, C57BL/6 mice implanted subcutaneously with syngeneic EL-4 lymphoma cells were employed as the host. Oral administration of the extract leads to a reduction of tumor size and prolongation of the host survival time. As judged by plaque-forming cells against T-dependent (sheep erythrocytes) and T-independent (bacterial lipopolysaccharide) antigens, CSE showed to augment the antibody responses. As for the activities of peritoneal macrophages, chemotaxis was dramatically depressed within a few days after EL-4 transplantation up to the end of life, but treatment with CSE at -14, -7, -4, +4, +7 and +10 days after the tumor transplantation augmented the activity about four times stronger than that of control. Phagocytic activity of macrophages was also decreased in tumor-bearing mice treated with cyclophosphamide (100 mg/kg) 3 and 5 days after tumor transplantation. But administration of CSE restored the activity to more than the normal level. The overall efficacy of CSE was tested with protective activity against systemic infection by Salmonella enteritides. The tumor-bearing mice receiving this medicine lived significantly longer than any other groups without CSE.

MAIN MESH HEADINGS:

Drugs, Chinese Herbal/*PHARMACOLOGY
Immunity, Cellular/*DRUG EFFECTS
Lymphoma/*DRUG THERAPY

ADDITIONAL MESH

HEADINGS:
- Administration, Oral
- Animal
- Antineoplastic Agents, Combined/PHARMACOLOGY
- B-Lymphocytes/DRUG EFFECTS
- B-Lymphocytes/IMMUNOLOGY
- Basidiomycetes
- Chemotaxis/DRUG EFFECTS
- Cyclophosphamide/ADMINISTRATION & DOSAGE
- Drugs, Chinese Herbal/ADMINISTRATION & DOSAGE
- Erythrocytes/IMMUNOLOGY
- Female
- Lymphocytes/DRUG EFFECTS
- Lymphocytes/IMMUNOLOGY
- Lymphoma/MORTALITY
- Lymphoma/PATHOLOGY
- Macrophages/IMMUNOLOGY
- Macrophages/PHYSIOLOGY
- Mice
- Mice, Inbred Strains
- Neoplasm Transplantation
- Phagocytosis/DRUG EFFECTS
- Sheep/BLOOD
- Support, Non-U.S. Gov't

PUBLICATION TYPES:
- JOURNAL ARTICLE

REGISTRY NUMBERS:
- 0 (Antineoplastic Agents, Combined)
- 0 (Drugs, Chinese Herbal)
- 50-18-0 (Cyclophosphamide)

LANGUAGE:
- Eng

Ref. 24

TITLE:
Comparative studies on pharmacological action between Chinese Caterpillar fungus and cultured Qinghai Cordeeps sinensis

AUTHOR:
Tang RJ; Wang ZP; Zhang J; Min ZH; Dang HQ

AUTHOR AFFILIATION:
Qinghai Inst. for Drug Control, Xining, Qinghai, China

SOURCE:
Chin. Tradit. Herbal Drugs; VOL 16 ISS Nov 1985, P489-493, (REF 11)

SECONDARY SOURCE ID:
IPA/87/709256

ABSTRACT:
IPA COPYRIGHT: ASHP The in vitro and in vivo pharmacological effects of the Chinese caterpillar fungus (Cordyceps sinensis) were studied.

LANGUAGE:
CHI

KEYWORDS:
Cordyceps sinensis
pharmacology
in vitro, in vivo, China
Fungi
pharmacology, China
China
pharmacology, in vitro, in vivo
Caterpillar fungus

Ref. 25

TITLE:
[Lewis lung cancer of mice treated with Cordyceps sinensis and its artificial cultured mycelia]

AUTHOR:
Zhang SL

SOURCE:
Chung Yao Tung Pao; VOL 12, ISS 2, 1987, P53-4

SECONDARY SOURCE ID:
TOXBIB/87/273715

MAIN MESH HEADINGS:
Lung Neoplasms/*DRUG THERAPY
*Medicine, Chinese Traditional
*Medicine, Oriental Traditional

ADDITIONAL MESH HEADINGS:
Animal
Ascomycetes/ANALYSIS
Lepidoptera
Mice
Plant Extracts/THERAPEUTIC USE
Plants, Medicinal

PUBLICATION TYPES:
JOURNAL ARTICLE

REGISTRY NUMBERS:
0 (Plant Extracts)

LANGUAGE:
Chi

TITLE:
[Antitumor activity of Cordyceps sinensis and cultured Cordyceps mycelia]

AUTHOR:
Du DJ

SOURCE:
Chung Yao Tung Pao; VOL 11, ISS 7, 1986, P51-4
SECONDARY SOURCE ID:
TOXBIB/87/103232

MAIN MESH HEADINGS:
Ascomycetes/*GROWTH & DEVELOPMENT
*Medicine, Chinese Traditional
*Medicine, Oriental Traditional
Neoplasms, Experimental/*DRUG THERAPY
*Plants, Medicinal
Sphaeriales/*GROWTH & DEVELOPMENT

ADDITIONAL MESH HEADINGS:
Animal
Cyclophosphamide/THERAPEUTIC USE
Drug Synergism
Mice
Plant Extracts/THERAPEUTIC USE
Rats
6-Mercaptopurine/THERAPEUTIC USE

PUBLICATION TYPES:
JOURNAL ARTICLE
REGISTRY NUMBERS:
0 (Plant Extracts)
50-18-0 (Cyclophosphamide)
50-44-2 (6-Mercaptopurine)
LANGUAGE:
Chi

TITLE:
[Cordyceps sinensis and cultured mycelia]

AUTHOR:
Sun YH

SOURCE:
Chung Yao Tung Pao; VOL 10, ISS 12, 1985, P3-5 (REF: 26)
SECONDARY SOURCE ID:.
TOXBIB/86/218299

MAIN MESH HEADINGS:
*Ascomycetes
*Ascomycetes/ANALYSIS
*Ascomycetes/GROWTH & DEVELOPMENT
*Medicine, Chinese Traditional
*Medicine, Oriental Traditional
*Plants, Medicinal
*Plants, Medicinal/ANALYSIS
*Plants, Medicinal/GROWTH & DEVELOPMENT

ADDITIONAL MESH HEADINGS:
Adjuvants, Immunologic
Anti-Infective Agents
Antineoplastic Agents, Phytogenic

PUBLICATION TYPES:
JOURNAL ARTICLE
REVIEW

REGISTRY NUMBERS:
0 (Adjuvants, Immunologic)
0 (Anti-Infective Agents)
0 (Antineoplastic Agents, Phytogenic)

LANGUAGE:
Chi

Ref. 28

TITLE:
[Immuno-pharmacologic activity of Cordyceps sinensis (Berk) Sacc.]

AUTHOR:
Liu GT; Xu RL

SOURCE:
Chung Hsi I Chieh Ho Tsa Chih; VOL 5, ISS 10, 1985, P622-4, 581

SECONDARY SOURCE ID:
TOXBIB/86/190158

MAIN MESH HEADINGS:
*Medicine, Chinese Traditional
*Medicine, Oriental Traditional
Plant Extracts/*IMMUNOLOGY
*Plants, Medicinal

ADDITIONAL MESH HEADINGS:
Animal
English Abstract
Mice
Rosette Formation
Spleen/IMMUNOLOGY

PUBLICATION TYPES:
JOURNAL ARTICLE

REGISTRY NUMBERS:
0 (Plant Extracts)

LANGUAGE:
Chi

TITLE:
[Preliminary study of Cordyceps barnesii--comparison of the chemical constituents of Cordyceps barnesii and Cordyceps sinensis]

AUTHOR:
Guo YW

SOURCE:
Chung Yao Tung Pao; VOL 10, ISS 3, 1985, P33-5
SECONDARY SOURCE ID:
TOXBIB/86/002554

MAIN MESH HEADINGS:
*Medicine, Chinese Traditional
*Medicine, Oriental Traditional
Plants, Medicinal/*ANALYSIS

ADDITIONAL MESH HEADINGS:
Amino Acids/ISOLATION & PURIF
Comparative Study
Mannitol/ISOLATION & PURIF
Trace Elements/ISOLATION & PURIF

PUBLICATION TYPES:
JOURNAL ARTICLE
REGISTRY NUMBERS:
0 (Amino Acids)
0 (Trace Elements)
69-65-8 (Mannitol)
LANGUAGE:
Chi

Ref. 30

TITLE:
[Activation of murine peritoneal macrophages by natural Cordyceps sinensis and its cultured mycelia]

AUTHOR:
Zhang SL

SOURCE:
Chung Hsi I Chieh Ho Tsa Chih; VOL 5, ISS 1, 1985, P45-7, 5

SECONDARY SOURCE ID:
TOXBIB/85/152243

MAIN MESH HEADINGS:
*Macrophage Activation
*Medicine, Chinese Traditional
*Medicine, Oriental Traditional

ADDITIONAL MESH HEADINGS:
Animal
Ascitic Fluid
English Abstract
Female
Macrophages/IMMUNOLOGY
Male
Mice
Plant Extracts/IMMUNOLOGY
Plants, Medicinal
Tissue Culture

PUBLICATION TYPES:
JOURNAL ARTICLE

REGISTRY NUMBERS:
0 (Plant Extracts)

LANGUAGE:
Chi

TITLE:
[The effect of natural Cordyceps sinensis and its cultured mycelia on murine immuno-organs and function of the mononuclear macrophage system]

AUTHOR:
Chen DM

SOURCE:
Chung Hsi I Chieh Ho Tsa Chih; VOL 5, ISS 1, 1985, P42-4, 5
SECONDARY SOURCE ID:
TOXBIB/85/152242

MAIN MESH HEADINGS:
Macrophages/*IMMUNOLOGY
*Medicine, Chinese Traditional
*Medicine, Oriental Traditional
*Phagocytosis
*Plants, Medicinal

ADDITIONAL MESH HEADINGS:
Animal
English Abstract
Female
Human
Male
Mice
Mice, Inbred ICR
Plant Extracts/IMMUNOLOGY
Tissue Culture

PUBLICATION TYPES:
JOURNAL ARTICLE

REGISTRY NUMBERS:
0 (Plant Extracts)

LANGUAGE:
Chi

TITLE:
[Antiarrhythmic effects of Cordyceps sinensis (Berk.) Sacc.]

AUTHOR:
Mei QB; Tao JY; Gao SB; Xu GC; Chen LM; Su JK

SOURCE:
Chung Kuo Chung Yao Tsa Chih; VOL 14, ISS 10, 1989, P616-8, 640
SECONDARY
SOURCE ID:
TOXBIB/90/088760

ABSTRACT:
The administration of 65% alcohol extracts of Cordyceps sinensis can counteract the arrhythmias induced by aconitine or BaCl2 in rats, and increase the tolerant dose of ouabain to produce the arrhythmias in guinea pigs. The drug can reduce the heart rate of anesthetic rats, decreasing the contractility of isolated papillary muscle or atria in guinea pigs, but showing no effect on the automatic rhythmicity and the functional refractory period of the atria.

MAIN MESH
HEADINGS:
*Anti-Arrhythmia Agents
Arrhythmia/*DRUG THERAPY
*Ascomycetes
Drugs, Chinese Herbal/*THERAPEUTIC USE
*Lepidoptera
ADDITIONAL
MESH HEADINGS:
Aconitine
Animal
Arrhythmia/CHEMICALLY INDUCED
Barium
Drugs, Chinese Herbal/PHARMACOLOGY
English Abstract
Female
Guinea Pigs
In Vitro
Male
Myocardial Contraction/DRUG EFFECTS
Ouabain
Rats
Rats, Inbred Strains
PUBLICATION
TYPES:
JOURNAL ARTICLE
REGISTRY
NUMBERS:
0 (Anti-Arrhythmia Agents)
0 (Drugs, Chinese Herbal)
10361-37-2 (barium chloride)
302-27-2 (Aconitine)
630-60-4 (Ouabain)
7440-39-3 (Barium)
LANGUAGE:
Chi

TITLE:
[Influence of Cordyceps sinensis (Berk.) Sacc. and its cultured mycelia on murine platelets and immune organs after irradiation with 60Co gamma-rays]

AUTHOR:
Liu XP

SOURCE:
Chung Yao Tung Pao; VOL 13, ISS 4, 1988, P44-6, 64

SECONDARY SOURCE ID:
TOXBIB/89/063541

MAIN MESH HEADINGS:
*Ascomycetes
Drugs, Chinese Herbal/*THERAPEUTIC USE
*Lepidoptera
Radiation Injuries, Experimental/*DRUG THERAPY

ADDITIONAL MESH HEADINGS:
Animal
Blood Platelets
Cobalt Radioisotopes
English Abstract
Female
Male
Mice
Mice, Inbred ICR
Organ Weight
Platelet Count
Spleen/ANATOMY & HISTOLOGY
Thymus Gland/ANATOMY & HISTOLOGY

PUBLICATION TYPES:
JOURNAL ARTICLE

REGISTRY NUMBERS:
0 (Cobalt Radioisotopes)
0 (Drugs, Chinese Herbal)

LANGUAGE:
Chi

Ref. 34

TITLE:
[Studies on immunological actions of Cordyceps sinensis. I. Effect on cellular immunity]

AUTHOR:
Chen YP

SOURCE:
Chung Yao Tung Pao; VOL 8, ISS 5, 1983, P33-5

SECONDARY SOURCE ID:
TOXBIB/84/082377

MAIN MESH HEADINGS:
Immunity, Cellular/*DRUG EFFECTS
*Plants, Medicinal

ADDITIONAL MESH HEADINGS:
Animal
China
Female
Graft vs Host Reaction
Graft Survival
Male
Mice
Rabbits

PUBLICATION TYPES:
JOURNAL ARTICLE

LANGUAGE:
Chi

TITLE:
[Studies on chemical constituents of Cordyceps sinensis I]

AUTHOR:
Xiao YQ

SOURCE:
Chung Yao Tung Pao; VOL 8, ISS 2, 1983, P32-3
SECONDARY SOURCE ID:
TOXBIB/83/233023

MAIN MESH HEADINGS:
*Medicine, Chinese Traditional
*Medicine, Oriental Traditional
Plant Extracts/*ISOLATION & PURIF
Plants, Medicinal/*ANALYSIS

ADDITIONAL MESH HEADINGS:
Chemistry

PUBLICATION TYPES:
JOURNAL ARTICLE
REGISTRY NUMBERS:
0 (Plant Extracts)
LANGUAGE:
Chi

TITLE: [Physiologically active compounds in the extracts from tochukaso and cultured mycelia of Cordyceps and Isaria]
AUTHOR: Ikumoto T; Sasaki S; Namba H; Toyama R; Moritoki H; Mouri T
AUTHOR AFFILIATION: Research Laboratory, Taito Co., Ltd., Tokushima, Japan.
SOURCE: Yakugaku Zasshi 1991 Sep;111(9):504-9
CITATION IDS: PMID: 1762052 UI: 92106193
ABSTRACT: Tochukaso is a Chinese traditional medicine composed of a fruit body of Cordyceps sinensis and its parasitic host larva. Tochukaso (C. sinensis) and the cultured mycelia of five species of Cordyceps and four species of Isaria were each extracted with hot water and examined for the inotropic effect on guinea-pig right atrium in vitro system. The extracts from C. militaris and I. felina showed a negative inotropic effect to approximately the same extent as that from Tochukaso. These three extracts also showed inhibitory action on twitch response of guinea-pig ileum and aggregation of human blood platelet. It is suggested that these activities are ascribed to the combination of adenosine, 5'-adenosine monophosphate and several other nucleic acid- related compounds, all of which have been shown to be present in the extracts.
MAIN MESH HEADINGS: Drugs, Chinese Herbal/*pharmacology
Muscle Contraction/*drug effects
Myocardial Contraction/*drug effects
ADDITIONAL MESH HEADINGS: Animal
Depression, Chemical
Drugs, Chinese Herbal/analysis
English Abstract
Guinea Pigs
Human
Ileum/drug effects
In Vitro
Muscle, Smooth/drug effects
Nucleic Acids/analysis
Platelet Aggregation/drug effects
PUBLICATION TYPES: JOURNAL ARTICLE
REGISTRY NUMBERS: 0 (Drugs, Chinese Herbal)
0 (Nucleic Acids)
LANGUAGE: Jpn

TITLE: [Short-term curative effect of cultured Cordyceps sinensis (Berk.) Sacc. Mycelia in chronic hepatitis B]
AUTHOR: Zhou L; Yang W; Xu Y; Zhu Q; Ma Z; Zhu T; Ge X; Gao J
AUTHOR AFFILIATION: Shanxi Liver Diseases Research Co-operation Group.
SOURCE: Chung Kuo Chung Yao Tsa Chih 1990 Jan;15(1):53-5, 65
CITATION IDS: PMID: 1693509 UI: 90274841
ABSTRACT: 33 cases of chronic hepatitis B. patients treated with cultured Cordyceps sinensis mycelia have shown that the drug improves the liver function, promotes negative transfer HBsAg, and markedly helps to raise plasma albumin, resist high gamma globulin and to adjust body immunocompetence. It is therefore suggested that cultured Cordyceps sinensis mycelia may be used as a medicine for chronic hepatitis B. patients in adjusting protein metabolism and correcting inversion of albumin and globulin.
MAIN MESH HEADINGS: *Ascomycetes
Drugs, Chinese Herbal/*therapeutic use
Hepatitis B/*drug therapy
Hepatitis, Chronic/*drug therapy
ADDITIONAL MESH HEADINGS: Albumins/metabolism
Case Report
English Abstract
Female
Gamma-Globulins/metabolism
Hepatitis B Surface Antigens/analysis
Human
Male
PUBLICATION TYPES: JOURNAL ARTICLE
REGISTRY NUMBERS: 0 (Albumins)
0 (Drugs, Chinese Herbal)
0 (Gamma-Globulins)
0 (Hepatitis B Surface Antigens)
LANGUAGE: Chi

TITLE: [Immunosuppressive effect of cultured Cordyceps sinensis on cellular immune response]
AUTHOR: Zhu XY; Yu HY
AUTHOR AFFILIATION: Beijing Friendship Hospital.
SOURCE: Chung Hsi I Chieh Ho Tsa Chih 1990 Aug;10(8):485-7, 454
CITATION IDS: PMID: 2208437 UI: 91004434
ABSTRACT: The immunosuppressive effect of cultured Cordyceps sinensis (Bei Lin Capsule) was studied in vitro and in vivo. When the drug was added from 0.6 mg/ml to 5 mg/ml a significant dose-dependent inhibition effect was shown in the following immune reactions of mice (P less than 0.05- 0.01): phagocytic function of peripheral blood leucocytes assayed by chemiluminescence; mitogenic response of spleen lymphocytes to Con A; mixed lymphocyte culture and LPS induced interleukin-1 release of macrophages. The survival rate of mice spleen lymphocytes cultured with Cordyceps sinensis 5 mg/ml in 37 degrees C 5% CO2 for 5 days was more than 80%. Cordyceps sinensis 4 g/kg daily significantly prolonged the mice skin allograft survival time (12.7 +/- 2.2 days v.s. 8.3 +/- 0.7 days in the control, P less than 0.01) and its immunosuppressive effect was close to that of Cyclosporin A 5 mg/kg daily on skin allograft.
MAIN MESH HEADINGS: Drugs, Chinese Herbal/*pharmacology
*Immunosuppressive Agents
Lymphocyte Transformation/*drug effects
Phagocytosis/*drug effects
Plants, Medicinal/*growth & development
ADDITIONAL MESH HEADINGS: Animal
English Abstract
Graft Survival/drug effects
Immunity, Cellular/drug effects
Interleukin-1/biosynthesis
Macrophages/immunology
Mice
Mice, Inbred BALB C
Mice, Inbred C57BL
Mice, Inbred DBA
PUBLICATION TYPES: JOURNAL ARTICLE
REGISTRY NUMBERS: 0 (Drugs, Chinese Herbal)
0 (Immunosuppressive Agents)
0 (Interleukin-1)
LANGUAGE: Chi
