Anti-Cancer Mushroom of Toadstool in Korea

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Abstract

Many mushrooms of toadstool were collected all over the Korea from March 1976 to September 1999. They were identified and classified into anti-cancer mushrooms of toadstool. According to the result they were composed of 12 families, 19 genera and 32 species. Among them, 26 species of mushroom of toadstool is experimented about how their anticancer function works in China. But untill now, there has not been any other studies for medcinal function in Korea.

Key words : anti-cancer, mushroom, toadstool.

INTRODUCTION

Mushrooms which are subordinated to higher fungi control balance of ecosystem by performing their function of decomposer. They are used for long time as food, medicine and forestal resources by the human being. Nowadays,however, there are many extinct biological species because of enviornmental pollution and ecosystem destrution and also some kinds of higher fungi are included.

Recently in mushrooms it is found that polysaccharide which is anticancer compound and β-glucan that increse human immunity. So many researchers are interested and have been working in them. For example from mushrooms new biotics Tylopeptins A and B was found from Tylopilus neofelleus (Lee et al.1999).

Also some anticancer compound and other medicinal compounds were found from Lampermyces japonicus and Clitocybe acremelagus. Actually Ganoderma lucidum, Phellinus linteus Agaricus blazei and Cordyceps group are being used for preventing or treating cancer and they are artificially cultivated these days. Especially in China, poisonous mushrooms has been used well as immune intensifier customary.

In this research, mushrooms of toadstool which grow spontaneously in Korea were collected and worked taxonomically Then it is examined that their ecological properties, geographical disributions and medcinal properties.

MATERIALS AND METHODS

Materials

Many toadstools were collected all over the Korea from 1976 to 1999. They were idenfitied and classified into toadstools.

Methods

Among toadstools anticaner compound were exmined with the Cho(1999), Huang(1998),Lee et al.(1999), Mao et al.(1993) and Ying et al. (1987).

RESULTS

Tricholomataceae 송이과

Panellus stypticus (Bull.:Fr.) Karst. 부채버섯

Hab.:Clustered on trunks and branches of broadleaved trees.

Distr.:Korea, all over the world.

Charact. of Anti-Cancer:This fungus contains an astringent. Grind the dry sporophore of this fungus into powder, apply the powder on wounds, it stops bleeding from external wounds. The inhibition rates against sarcoma 180 and Ehrlich carcinoma amount to 80% and 70% respectively.

Clitocybe acromelalga Ichimura 독깔대기버섯

Hab. Clustered or cespitose on soils of bamboo and mixed forests. Seldom fairy ring.

Distr.:Korea,Japan

C. clavipes (Pers.:Fr.) Kummer 배불뚝이깔대기버섯

Hab.:Solitary or clustered on soils of forests.

Distr.: kKorea, North temperate of Northern hemisphere.

Lampteromyces japonicus (Kawam.) Sing. 화경버섯

Hab.:Clustered on dead trunk of broaded leaved.

Distr.:Korea, Japan, Russia.

Charact.of Anti-Cancer:This fungus contains lunamycin which inhibits the growth of sarcoma 180 and Ehrich carcinoma attain 80% and 70% respectively. *Hohenbuehelia serotina* is edible and similar to *Lampteromyces japonicus* in outline, the inhibition rate of which against the sarcoma and Ehrlich carcinoma is 70%.

Mycena pura (Pers.:Fr.)Kummer 맑은애주름버섯

Hab.: Clustered on soils of forests with leaves.

Distr.:Korea, Japan.

Charact.of Anti-Cancer: It cures pains in the joints caused by leprosy, and is a remedy for injuries from falls fractures, contusions and strains, for pains from fracture, for lepros neuralgia, sciatica, trigeminal neuralgia, migraine, neuralgia in the sockets as well as rheumatic pains in the joints. The inhibition rates Mycena pura against sarcoma 180 and *Ehrlich carcinoma* are 60% and 70% respectively.

Tricholoma ustale (Fr.:Fr.) Kummer 담갈색송이

Hab.:Solitary or clustered on soils of pine trees with broad leaved Distr.:Korea, Temperate of Northern hemisphere.

Charact.of Anti-Cancer:It cures measles and sick children feeling fidgety and agitated. In addition, the inhibition rates of *Tricholoma ustale against sracoma* 180 and Ehrlich carcinoma are from 70% to 90%.

Amanitaceae 광대버섯과

Amanita volvata (Peck)Martin 큰주머니광대버섯

Hab.: Clustered on soils of broadleaved forests.

Distr.:Korea,Japan,China, Russia, North America.

A.ceciliae (Berk.& Br.)Bas 점박이광대버섯

Hab.: Solitary or clustered on soils of forests.

Distr.:Korea, Austrailea,Northern hemisphere.

A.muscaria (L.:Fr.)Pers. 광대버섯

Hab.:Clustered on soils of needle-broadleave forests.

Distr.:Korea,Japan,Austrailes, Newzealand, North temperate of northern hemisphere.

Charact.of Anti-Cancer:The ethanol extract of sporophore inhibits the growth of sarcoma 180 in white mice. On the other hand, it is toxic, kills insects like etc. It contains toxins such as muscarin etc. A small dose tends to be soporific.

A.pantherina (DC.:Fr.) Krombh. 마귀광대버섯

Hab.:Solitary or clustered on soils of mixed forests.

Distr.:Temperate of nortehern hemisphere.

Agaricaceae 주름버섯과

Agaricus placomyces Pk. 주름버섯아재비

Hab.:Solitary or clustered on soils of forests.

Distr.:Korea,Japan,China,North America.

Charact.of Anti-Cancer:It contains many kinds of vitamins (such as,c,p,etc.);taken regularly, it may prevent against may diseases such as beriberi, debility, loss of appetite, indigestion and insufficient milk secretion of women during breast feeding period, rupture of capillaries, gum and abdominal bleedin as well as pellagra and so on. This species bears campestrin which is effective against Gram positive and Gram negative bacteria. Its inhibition rate against sarcoma 180 and Ehrlich carcinoma amounts to 80%. In addition, the inhibition rate of *Agaricus placomyces* against sarcoma 180 and Ehrlich carcinoma is 60%.

Coprinaceae 먹물버섯과

Coprinus atramentarius (Bull.:Fr.) Fr. 두엄먹물버섯

Hab.:Clustered on soils of garden, field,near rotten trees.

Distr.:Korea,all over the world.

Charact.of Anti-Cancer:This fungus helps digestion, reduces phlegm. When applied externally, It cures nameless sores and other kinds of sores. Its inhibition rate against sarcoma 180 and Ehrlich carcinoma is 100%.

C.comatus (Muller:Fr.) Pers. 먹물버섯

Hab.: Clustered on soils of fields, near fence.

Distr.:Korea,all over the world.

Charact.of Anti-Cancer:Sporophore helps digestion and is used for treatment of piles. Its inhibition rates against sarcoma 180 and Ehrlich carcinoma are 100% and 90% respectively.

Coprinus micaceus (Bull.:Fr.)Fr. 갈색먹물버섯

Hab.:Clustered or cespitose on trunkson broadleave trees or on trees in soils.

Distr.:Korea, all over the world.

Charact.of Anti-Cancer:Sporophore helps digestion and is used for treatment of piles. Its inhibition rates against sarcoma 180 and Ehrlich carcinoma are 100% and 90% respectively. In addition, the inhibition rate of *Coprinus micaceus* against sarcoma 180 is 70% that against Ehrlich carcinoma is 80%.

Strophariaceae 독청버섯과

Naematoloma fasciculare (Hudson:Fr.)Karst. 노란다발

Hab.:Cespitose on trunks in trees and bamboo trees.

Distr.:Korea,all over the world.

Charact.of Anti-Cancer:The sticky substance on sporophore surface after extraction with salt solution, warm water, alkaline solution or organic solvent may obtain polysacharose A, the inhibition rate of which against sarcoma 180 in white mice and Erhlich ascites tumour(1-10mg/kg. body wt. intra-abdominal injection) reaching 80-90%. besides, it my also prevent infections from staphylococcus, pneumonia bacillus and tubercle. The inhibition rates of *N.fasciculare* is 80% and 90% respectively.

N. sublateritium (Fr.) Karst. 개암버섯

Hab.:Cespitose on trunks, fallen trees, tres in soile of broadleaved trees.

Distr.:Korea, temperate of northern hemisphere.

Charact.of Anti-Cancer:The sticky substance on sporophore surface after extraction with salt solution, warm water, alkaline solution or organic solvent may obtain polysacharose A, the inhibition rate of which against sarcoma 180 in white mice and Erhlich

ascites tumour(1-10mg/kg.body wt.intra-abdominal injection) reaching 80-90%. besides, it my also prevent infections from staphylococcus, pneumonia bacillus and tubercle. Moreover, the inhibition rates of *Naematoloma sublateritium* against sarcoma 180 and Ehrlich carcinama is 60% and 70% respectively.

Pholiota adiposa (Fr.) Kummer 검은비늘버섯

Hab.:Cespitose on dead trunks of trees.

Distr.:Korea, Northern hemisphere.

Charact.of Anti-Cancer:The sticky substance on sporophore surface after extraction with salt solution, warm water, alkaline solution or organic solvent may obtain polysacharose A, the inhibition rate of which against sarcoma 180 in white mice and Erhlich ascites tumour(1-10mg/kg. body wt.intra-abdominal injection) reaching 80-90%. besides, it my also prevent infections from staphylococcus, pneumonia bacillus and tubercle.

P. flammans (Fr.) Kummer

Hab.:Clustered on trunks of broadleaved trees.

Distr.: Korea, Japan.

Charact.of Anti-Cancer:Its sporophore tends to lower blood cholesterol in experimental animals. Its inhibition rate against sarcoma 180 and Ehrlich carcinoma are 90% and 100% respectively. In addition, those of *Pholiota flammans* against both tumours are 90% and 100% respectively.

Cortinariacaeae 끈적버섯과

Gymnopilus spectabilis (Fr.)Sing. 갈황색미치광이버섯

Hab.:Cespitose on rotten wood of broadleaved trees.

Distr.:Korea, all over the world.

Charact.of Anti-Cancer:According to the records, its inhibition rate against sarcoma 180 is 60%, that against Ehrlich carcioma up to 70%.

Paxillaceae 우단버섯과

Paxillus involutus (Batsch:Fr.) Fr. 주름우단버섯

Hab.Clustered on soils of forests and fields.

Distr.:Korea, Japan,Minor Asia, Europe, Africa, north America.

Charact.of Anti-Cancer:When made into 'Tendon-easing pills', it cures lumbago and painful legs, numbed limbs and discomfort in tendons and veins.

Russulaceae 무당버섯과

Lactarius piperatus (Scop:Fr.) S.F.Gray 굴털이

Hab.:Clustered on soils of mixed forests.

Distr.:Korea, Austraeilea, north temperate of northern hemisphere.

Charact.of Anti-Cancer:When made into 'Tendon-easing pills', they tend to cure lumbago and painful legs, numbed limbs, discomfort in tendons and bones, and tetany. The hot water extract of sporophore inhibits Lewis pulomnary ademcma in white mice. Its inhibition rate against sarcoma180 in white mice is 80%, that against Ehrlich carcinoma 70%.

L.vellereus (Fr.) Fr. 새털젖버섯

Hab.: Clustered on soils of mixed forests.

Distr.:Korea,Japan,China,Siberia,minor Asia, Europe, north America.

Charact.of Anti-Cancer:When made into 'Tendon-easing pills', they tend to cure lumbago and painful legs, numbed limbs, discomfort in tendons and bones, and tetany. Its inhibition rate against sarcoma180 in white mice is 60%, that against Ehrlich carcinoma also 60%.

Russula densifolia (Secr.) Gill. 애기무당버섯

Hab.:Clustered on soils of forests.

Distr.:Korea,Japan,China,siberia,Europe,north America.

Charact.of Anti-Cancer:When made into 'Tendon-easing pills', they tend to cure lumbago and painful legs, numbed limbs, discomfort in tendons and bones, and tetany. This fungus is effectively used by people in Fujian for treatment of dysentery.

R. emetica (Schaeff.:Fr.) S.F.Gray 냄새버섯

Hab.: Clustered on soils of forests.

Distr.:Korea, japan.

Charact.of Anti-Cancer:Data show that its inhibition rate against sarcoma 180 is up to 100%, that against Ehrlich carcinoma up to 90%.

R. foetens Pers.:Fr. 깔대기무당버섯

Hab.: Clustered on soils of forests.

Distr.:Korea,Japan, Siberia,minor Asia,Europe,north America.

Charact.of Anti-Cancer:When made into 'Tendon-easing pills', they tend to cure lumbago and painful legs, numbed limbs, discomfort in tendons and bones, and tetany. Its inhibition rate against sarcoma 180 is 70%, that against Ehrlich carcinoma 70%.

R. lauracerasi Melzer 밀짚색무당버섯

Hab.:Clustered on soils of broadleave trees.

Distr.:Korea,Japan,Europe,North America.

Charact.of Anti-Cancer:Reports show that it contains anticarcinogenic substances, its inhibition rate against sarcoma 180 in white mice is 90%, that against Ehrlich carcinoma 80%.

Boletaceae 그물버섯과

Boletus speciosus Frost 큰그물버섯

Hab.:Clustered on soils of broadleaved trees.

Distr.:Korea,Japan,China,Siberia.

Charact.of Anti-Cancer:It tends to cure indigestion and abdominal distension. Decoct 6g dried products with water, the decoction to be taken twice daily.

Gyroporus castaneus (Bull.:Fr.) Quel. 흰둘레그물버섯

Hab.:Solitary or clustered on soils of forests.

Distr.:Korea,Austrailea,Temperate of norther hemisphere.

Charact.of Anti-Cancer:Data show that its inhibition rate against sarcoma 180 is 80%, that against Ehrlich carcinoma 70%.

Ramariaceae 싸리버섯과

Ramaria flava (Schaeff.:Fr.) Quel. 노랑싸리버섯

Hab.: Solitary on soils of forests.

Distr.:Korea,Japan,Europe.

Charact.of Anti-Cancer:It was reported that the inhibition rates of *R. flava* against sarcoma 180 and Ehrlich carcinoma are from 60% to 70%.

R.formosa (Pers.:Fr.) Quel. 붉은싸리버섯

Hab.:Clustered on soils of broadleaved forests.

Distr.:Korea,Japan, Temperate of northern hemisphere.Austrailea.

Charact.of Anti-Cancer: It was reported that the inhibition rates of *R. formosa* against sarcoma 180 and Ehrlich carcinoma are from 60% to 70%.

Phallaceae 말뚝버섯과

Lysurus mokusin (L.:Pers.) Fr. 새주둥이버섯

Hab.:Clustered on soils with weed.

Distr.:Korea, Japan.

Charact.of Anti-Cancer:According to reports, it possesses anticarcinogenic effect. Its inhibition rate against sarcoma 180 in white mice is 70% that against Ehrlich carcinoma up to 80%.

Sclerodermataceae 어리알버섯과

Scleroderma citrinum Pers. 황토색어리알버섯

Hab.: Clustered on soils of forests.

Distr.;Korea.all over the world.

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