Mugla Journal of Science and Technology, Special Issue, 2016, Pages 19-20

Mugla Journal of Science and Technology

SOME LACTARIUS SPECIES FROM THE AEGEN REGION OF TURKEY

Handan ÇINAR YILMAZ[1], Mustafa IŞILOĞLU[1]*

[1]Department of Biology, Faculty of Science, Muğla Sıtkı Koçman University, Kötekli, Muğla, Turkey
h.platanus@gmail.com, Isiloglu48@gmail.com

Received: 15.10.2015, Accepted: 07.04.2016
*Corresponding author

Abstract

Taxonomic studies had been done between the 2012-2015 years about Lactarius taxa which have grown in Aegean region of Turkey. Lactarius species have economical importance which is known as Çıntar, Kanlıca, Espit and Melki from the rural population. According to our results, 16 Lactarius taxa which are edible and non-edible features were found at the region.
Keywords: Lactarius, Aegean Region, Turkey

EGE BÖLGESİ'NDE YETİŞEN BAZI *LACTARIUS* TÜRLERİ

Özet

Ege Bölgesi'nde yöre halkı tarafından Çıntar, Kanlıca, Espit veya Melki olarak bilinen, ekonomik açıdan değerli olan Lactarius cinsi üzerine 2012-2015 yılları arasında taksonomik araştırmalar yapılmıştır. Elde edilen verilere göre bölge genelinde yenir ve yenmez özellikte olan 16 Lactarius türü bulunmuştur.
Anahtar Kelimeler: Lactarius, Ege Bölgesi, Türkiye

1 Introduction

Turkey has a variety of flora and shows the wealth of natural mushrooms that grow in different environments because of the different climate ranges and topographic structure. Aegean region is located at west part of Turkey and a typically Mediterranean climate property is seen. So most of edible mushroom species are grown naturally.

Edible species have big importance for medicinal uses and exporting. *Lactarius* species, one of the species with high popularity, humans have widespread use in the region in terms of providing a livelihood both in cooking. According to previous studies, this species provided many benefits for human health.

Lactarius species are widely used in many cultures for their medicinal benefits. *Lactarius deterrimus* species is seen even before 2000 as is depicted in Roman frescoes. In the earliest studies, variety sesquiterpen compunds were found in all *Lactarius* species. In 19th century, French physicist Dufresnoy studied *Lactarius deliciosus* with rose petals, whale oil, sulfur and improves the more than thirty washed using an extract made from yarrow tuberculosis cases reported.

Lactarovidlin the sesquiterpene aldehyde compound of *L. volemus* was found to have cytotoxic activity regulator. These compounds include stearic acid esters have similar activity and Deterrol sesqiterpenoid with the alcohol functionality present in the structure, against *Staphylococcus aureus* species in weak though been reported to exhibit antibacterial activity (4).

According to studies, the compounds of the *L. deterrimus* species show activation against bacteria such as gram + and *Escherichia coli, Proteus vulgaris,* and *Mycobacterium smegmatis* as Gram – bacterias (1). In addition to these studies these spesies compounds have a weak inhibitory property against to *Staphylococcus aureus, Bacillus cereus* and *B. megaterium* bacterias. Thanks to Lactaroviol owned by Koch bacillus (TB) are reported to be active against the virus and also has features such as rheumatism prevention mechanism against cortisone owned (4). Lactaroviolin compounds has been found that the inhibition property against the tubercle bacillus cell. This compounds also have inhibition property aganist to tubercul basil bacteria such as *Mycobacterium tuberculosis, M. bovis* and *M. africanum* (3).

L. vellereus and the relative species is *L. subvellereus* species compounds were examined on Sarcoma 180 above 70% and on Erclich cancer cells inhibition property above 60% (2). Besides these methanol extract of *L. vellereus* compounds show resistance to types of DNA damage on derived human cells. So they think of these compounds can create a natural mutagenic source to prevent disease of cancer (8).

According to these benefits of *Lactarius* species are getting more important species. In this research, we investigated of *Lactarius* species of Aegean region.

2 Conclusion

In studies 16 *Lactarius* taxa were found in region which was done between 2012-2015 years. In the previous studies 8 taxa were found before in the region (5,6,7). These species are *L. chrysorrheus* Fr., *L. deliciosus* (L. : Fr.) Gray, *L. deterrimus* Gröger, *L. quieticolor* Romagn., *L. salmonicolor* R. Heim & Leclair, *L. sanguifluus* (Paulet) Fr., *L. semisanguifluus* R. Heim & Leclair, *L. vellereus* (Fr. : Fr.) Fr. According to literature datas, 8

Lactarius species were found every city and they are very common species in the region (5,6,7).
While continued studies in the region, except for the above 8 types have been added to the list. These species found for the first time in the region that are *L. musteus* Fr., *L. piperatus* (L. : Fr.) Pers., *L. porninsis* Rolland., *L. quietus* (Fr. : Fr.) Fr., *L. zonarius* (Bull.) Fr., *L. zonarioides* Kühner & Romagn., *L. volemus* (Fr. : Fr.) Fr., *L. torminosus* (Schaeff. : Fr.) Gray and their distribution are given at appendix page. Between these species, *L. deliciosus* (L. : Fr.) Gray, *L. deterrimus* Gröger, *L. quieticolor* Romagn., *L. salmonicolor* R. Heim & Leclair, *L. sanguifluus* (Paulet) Fr., *L. semisanguifluus* R. Heim & Leclair, *L. musteus* Fr., *L. porninsis* Rolland, *L. quietus* (Fr.: Fr.) Fr., *L. volemus* (Fr.: Fr.) Fr. species are edible, *L. piperatus* (L. : Fr.) Pers., *L. zonarioides* Kühner & Romagn., *L. zonarius* (Bull.) Fr., *L. vellereus* (Fr. : Fr.) Fr. species are non edible and *L. chrysorrheus* Fr., *L. torminosus* (Schaeff. : Fr.) Gray species are toxic features.

3 Acknowledgment

This research was supported by Mugla Sıtkı Kocman University BAP coordination unit. Proje number is 13/115.

4 References

[1] Dülger, B., Yılmaz, F. ve Gücin, F., "Anti-microbial activity of some *Lactarius* species", *Pharmaceutical Biology,* 40(4): 304-306, 2002.
[2] Mlinaric, A., Kac, J., Fatur, T. ve Filipic, M., "Anti-genotoxic activity of the mushroom *Lactarius vellereus* extract in bacteria and in mammalian cells in vitro", *Pharmize,* 59(3): 217-221, 2004.
[3] Puttaraju, N.G., Venkateshaih, S.U., Dharmesh, S.M., Urs, S.M.N. ve Samasundaram, R., "Antioxidant activity of inidigenous edible mushrooms", *J. Agric. Food Chem.,* 54(26): 9764-9772, 2006.
[4] Rogers, R., *The Fungal Pharmacy, The Complete Guide to Medicinal Mushrooms & Lichens of North America*, North Atlantic Book, Berkeley, California, 591s, 2011.
[5] Sesli E. ve Denchev C.M., "Checlists of the myxomycetes, larger Ascomycetes, and larger Basidiomycetes in Turkey", 6th edn. *Mycotaxon* Checklists Online *(http://www.mycotaxon.com/resources/checklists/sesli-v106-checklist.pdf)*, 136., 2014.
[6] Solak M.H, Işıloğlu, M., Kalmış E. ve Allı, H., *Macrofungi of Turkey Checklist, Vol. I.,* Bornova-İzmir: Üniversiteliler Ofset, 2007.
[7] Solak M.H, Işıloğlu, M., Kalmış E. ve Allı, H., *Macrofungi of Turkey Checklist, Vol. II.*, Bornova-İzmir: Üniversiteliler Ofset, 2015.
[8] Zang, J. ve Zhang Feng, X., "Sesquiterpene hydroxylactone from *Lactarius subvellereus", Phytocmehistry,* 46(1): 157-159, 1997.

Appendix A

According to literature datas, 8 *Lactarius* species that are *L. chrysorrheus* Fr., *L. deliciosus* (L. : Fr.) Gray, *L. deterrimus* Gröger, *L. quieticolor* Romagn., *L. salmonicolor* R. Heim & Leclair, *L. sanguifluus* (Paulet) Fr., *L. semisanguifluus* R. Heim & Leclair, *L. vellereus* (Fr. : Fr.) Fr. were found every city in the region. They are very common species.

***L. musteus* Fr.**; Muğla, Ula, Gülağzı village, with *Pinus sp.* 670 m., 02.12.2013, HÇ 279.

***L. piperatus* (L. : Fr.) Pers.**; Manisa, Demirci, Bardakçı village, 1150 m., 23.11.2013, HÇ 200. Muğla, Marmaris, Çetibeli district, 20.10.2014, HÇ 377, with *Pinus sp., Quercus sp., Fagus sp.,* under the mixed forest.

***L. porninsis* Rolland.**; Aydın, Çine, Eski Çine, Kavşit village, 690 m., 29.11.2013, HÇ 224. Aydın, Çine, Eski Çine, Çatak village, 670 m., 29.11.2013, HÇ 228, mycorrhizal with *Larix sp.*

***L. quietus* (Fr. : Fr.) Fr.**; Muğla, Ula, Gülağzı village road, forest area, 02.12.2013, HÇ 278. Muğla, Ula, Çiçekli village, mixed forest area, 11.01.2014, HÇ 324. Muğla, Ula, Çiçekli village, 06.12.2014, HÇ 873, mycorrhizal with *Quercus sp.*

***L. torminosus* (Schaeff. : Fr.) Gray**; Muğla, Ula, Çiçekli village, under decidious and mixed forest 29.11.2014, HÇ 857, mycorrhizal with *Betula sp.*

***L. zonarius* (Bull.) Fr.**; Aydın, Çine, Çatak village, under mixed forest area, 670 m., 29.11.2013, HÇ 223, mycorrhizal with *Quercus sp.*

***L. zonarioides* Kühner & Romagn.**; Aydın, Koçarlı village, Yığıntaş district, 29.11.2013, HÇ 241, under *Picea sp., Abies sp.* and mixed forest area.

***L. volemus* (Fr. : Fr.) Fr.**; İzmir, Bergama-Balıkesir road, Demircidere village, coniferous forest, 08.11.2014, HÇ 515. Balıkesir, Kaz Mountain, 09.11.2014, HÇ 524.