



Natural products application: Health, Cosmetic and Food

Provided by nature, adapted scientifically for industry



Book of abstracts
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1st Natural products application: Health, Cosmetic and Food: book of abstracts

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1° Online Congress on Natural products application: Health, Cosmetic and Food

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The Mountain Research Center is one of the 5 research centers within the Polytechnic Institute of Bragança and is an RD unit of excellence. CIMO conducts research on the Mediterranean mountain systems following an interdisciplinary strategy that goes from Nature to Products.

In all these years, we have had the commitment of disseminating science around the world, creating solid and robust bonds and partnerships with both, academia and industry, and we are always looking for more challenging collaborations.

In this sense, the mountain research center gathers different ways to keep evolving in our main mission of science dissemination, especially now during this difficult pandemic situation, in which science dissemination has been extremely affected.

Therefore, one of our responses was the creation of the first edition of the Natural Product Applications Online Congress, which consists in the dissemination of research using natural products applied in 3 different areas: cosmetic, food, and health.

Thanks to all of you in less than a month the congress reached more than 483 registration from universities and important companies from different parts of the world, such as Algeria, Argentina, Brazil, Colombia, France, Greece, Italy, Mexico, Netherlands, Poland, Russia, Serbia, Slovenia, Spain, Ukraine, and USA.

The NPA congress received and processed more than 211 communications, from which the scientific committee has selected the most appropriate for each type of communication, considering the limited time we have for this conference.

All the submitted works were divided into three main categories, Oral, Pitch, and Poster communications, which will join 9 Keynote lectures and one invited oral communication, to which, we would also like to thank for their availability and for accepting this invitation.

We could not thank you more for your participation, and we hope to see you next year on the second edition of the Natural Product Applications Congress.

NPA Team.

PCH-50

ROSMARINIC ACID –PLANT POLYPHENOL WITH ANTIMICROBIAL AND ANTIBIOFILM POTENTIAL

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Increasing antimicrobial resistance accompanied by range of side effects linked to antibiotics overuse are urging the demand for the novel antimicrobials with the ones obtained from natural sources considered as an appealing alternative. Rosmarinic acid is naturally occurring plant polyphenol. This study aimed to enlighten its potential role as inhibitor of planktonic and biofilm microorganism growth, along with its antifungal mechanisms. In this study, rosmarinic acid has shown promising anticandidal (MIC 0.1-0.2 mg/mL) (**Table 1**) and antibacterial (MIC 0.05->0.8 mg/mL) activity. To some extent rosmarinic acid was able to reduce attachment of fungal cells to abiotic surface, first stage in biofilm formation process, and eradicate preformed biofilms. Rosmarinic acid antifungal mode of action involves interference with membrane integrity, but not binding to membrane lipid, ergosterol, or reduction in protease production; while its antibiofilm activity is moderately attributed to decrease in exopolysaccharide production. Considering its wide antimicrobial and antibiofilm capacity rosmarinic acid could be further examined as antimicrobial agent along with range of medicinal plants with rosmarinic acid as the dominant compound.

Table 1: Minimal inhibitory (MIC) and minimal fungicidal (MFC) concentrations of rosmarinic acid, mg/mL.

Yeasts	Rosmarinic acid		Ketoconazole	
	MIC	MFC	MIC	MFC
<i>C. albicans</i> 475/15	0.1	0.2	0.003	0.006
<i>C. albicans</i> 13/15	0.1	0.2	0.0016	0.05
<i>C. albicans</i> 17/15	0.1	0.2	0.0016	0.05
<i>C. albicans</i> 527/14	0.15	0.3	0.0031	0.0062
<i>C. albicans</i> 10/15	0.15	0.3	0.0031	0.05
<i>C. albicans</i> 532/15	0.1	0.2	0.0031	0.0062
<i>C. albicans</i> ATCC 10231	0.2	0.4	0.0016	0.006
<i>C. krusei</i> H1/16	0.2	0.4	0.0016	0.003
<i>C. glabrata</i> 4/6/15	0.1	0.2	0.0016	0.006
<i>C. tropicalis</i> ATCC 750	0.2	0.4	0.0016	0.006
<i>C. parapsilosis</i> ATCC 22019	0.1	0.2	0.003	0.006

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