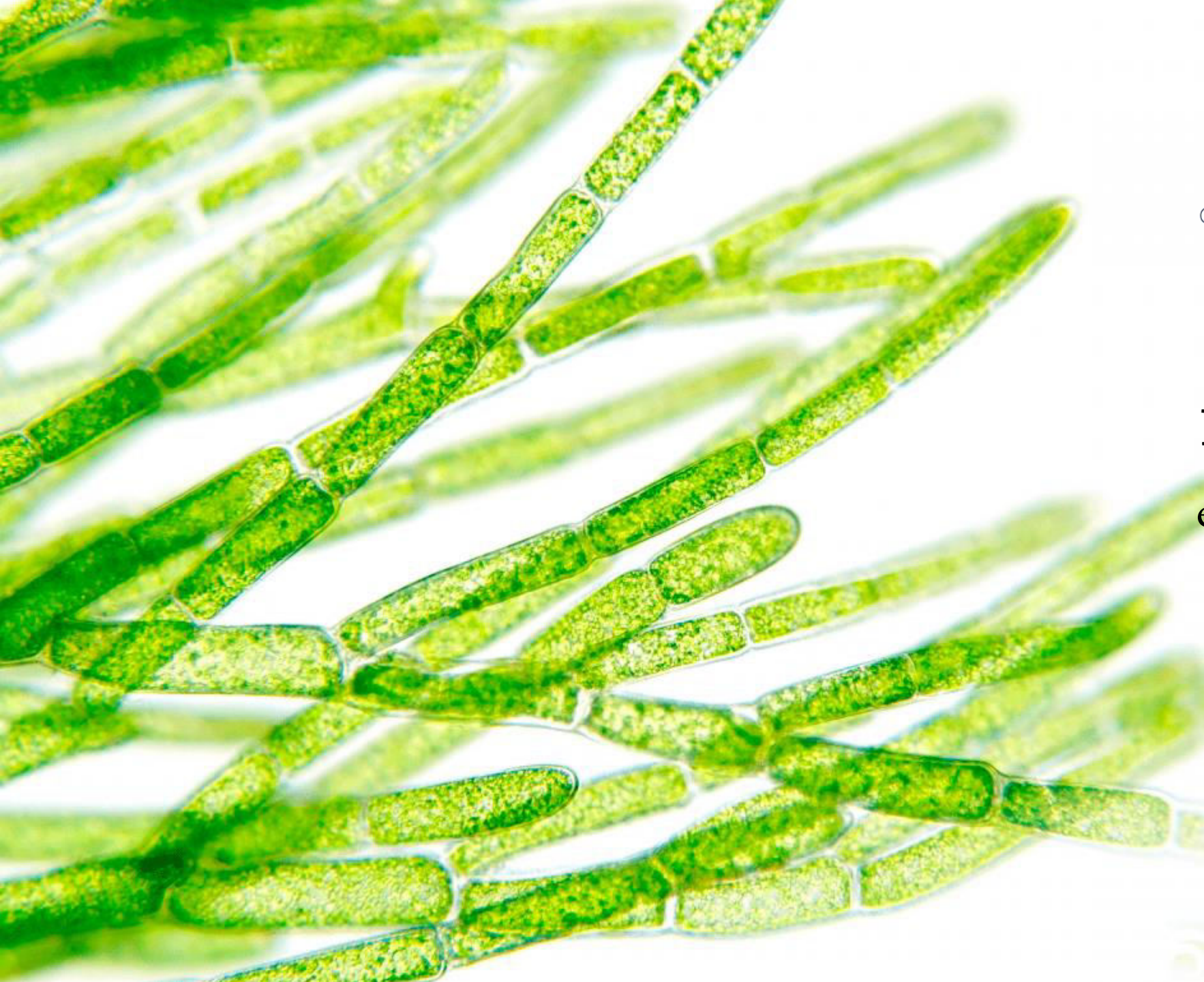


Consiglio Nazionale delle Ricerche

Neuronutrizione

e sostanze bioattive

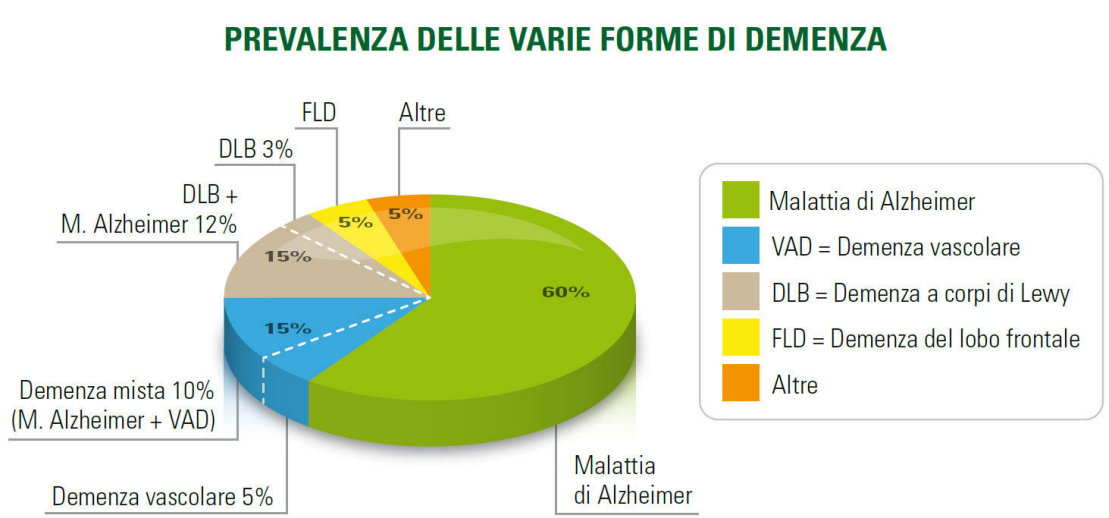
Sabato
11 **Maggio** ‘19

Dr. Domenico Nuzzo

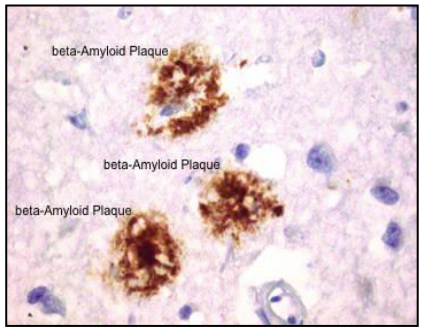
Consiglio Nazionale delle Ricerche
Istituto di Biomedicina ed Immunologia Molecolare
via Ugo La Malfa 153, 90146 Palermo
mail. domenico.nuzzo@cnr.it

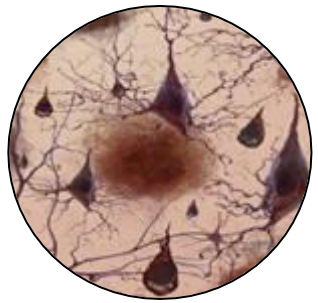
Neurodegenerazione

Ad oggi, 47 milioni di persone sono colpite da demenza e ogni anno si contano 4,6 milioni di nuovi casi: il 50-60% di questi è attribuibile al morbo di Alzheimer

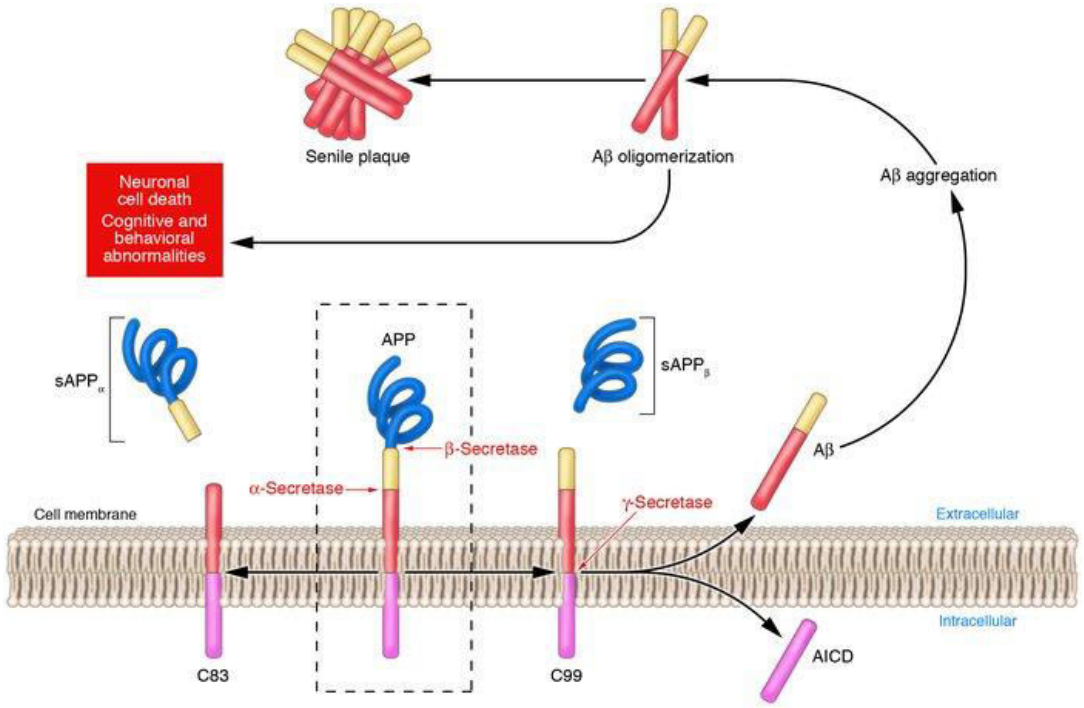


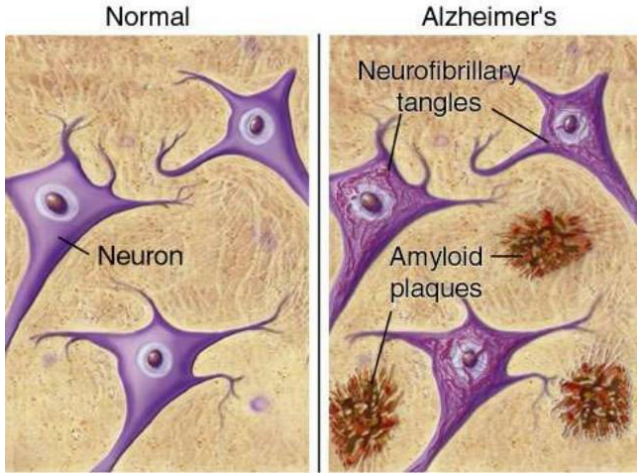
Il processamento errato di una proteina amiloide (Aβ) determina la sua aggregazione a livello del SNC

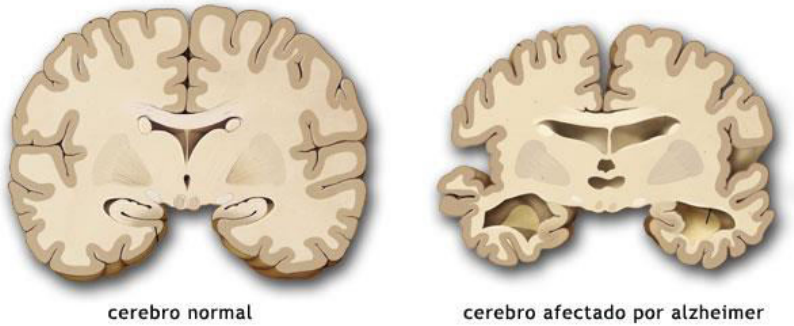




Alzheimer’s Diseases







cerebro normal

cerebro afectado por alzheimer

Stress ossidativo

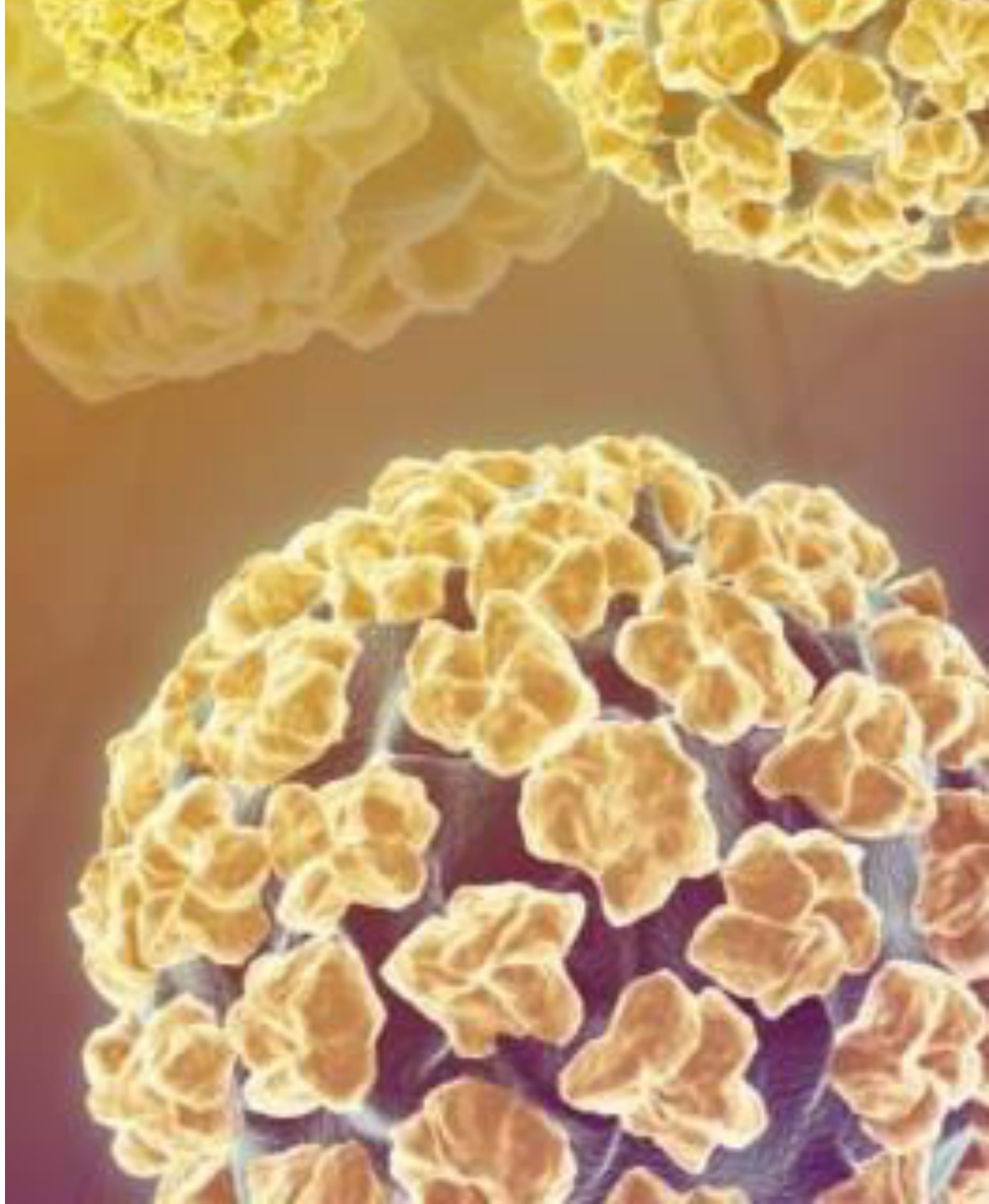
Lo stress ossidativo è un
disequilibro tra i sistemi di difesa cellulari antiossidanti e le specie chimiche ossidanti.

I costituenti cellulari sono vulnerabili al danno ossidativo.

Infiammazione

Il tessuto adiposo sembra responsabile, almeno in parte, della flogosi cronica del soggetto obeso.

Il tessuto adiposo, infatti, è in grado di produrre e rilasciare una varietà di fattori di segnalazione intercellulari complessivamente noti con il nome di adipochine (leptina, adiponectina, resistina e visfatina) e di citochine coinvolte nei processi infiammatori.



Modello metabolico di invecchiamento cerebrale

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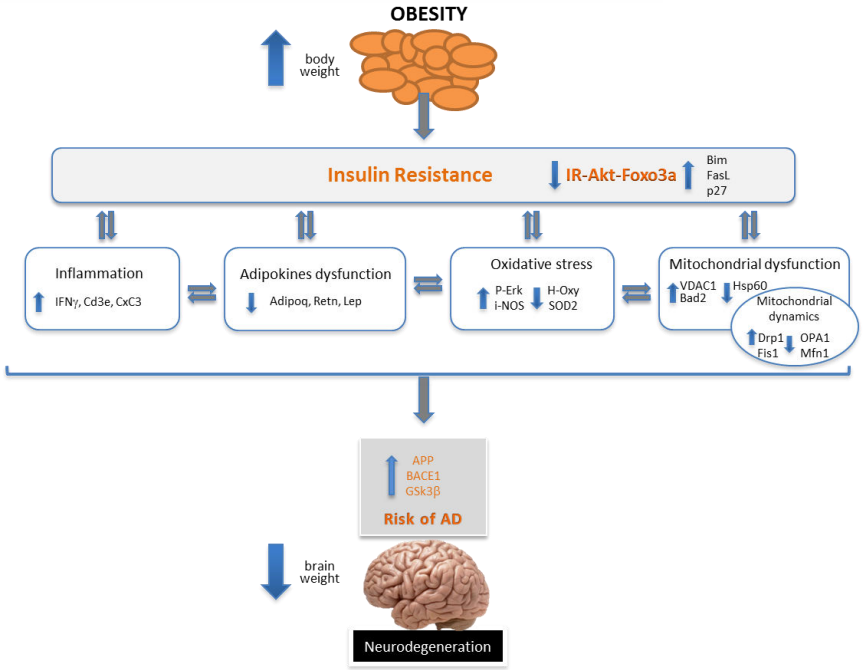
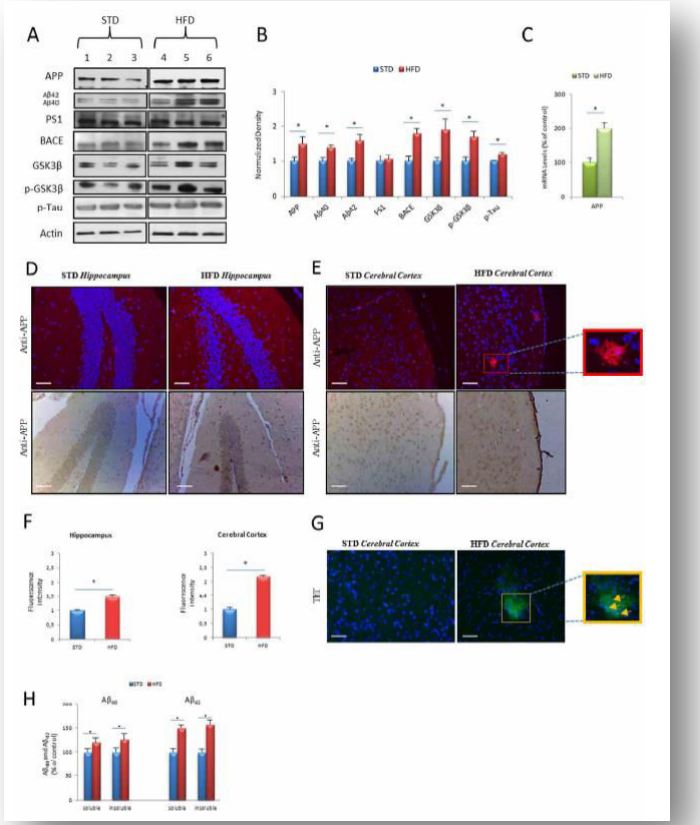
Current Alzheimer Research, 2015, *12*, 000-000 1

Insulin Resistance as Common Molecular Denominator Linking Obesity to Alzheimer's Disease

Domenico Nuzzo[a], Pasquale Picone[a], Sara Baldassano[b], Luca Caruana[a], Elisa Messina[a], Antonella Marino Gammazza[c,d], Francesco Cappello[c,d], Flavia Mulè[b] and Marta Di Carlo[a,*]



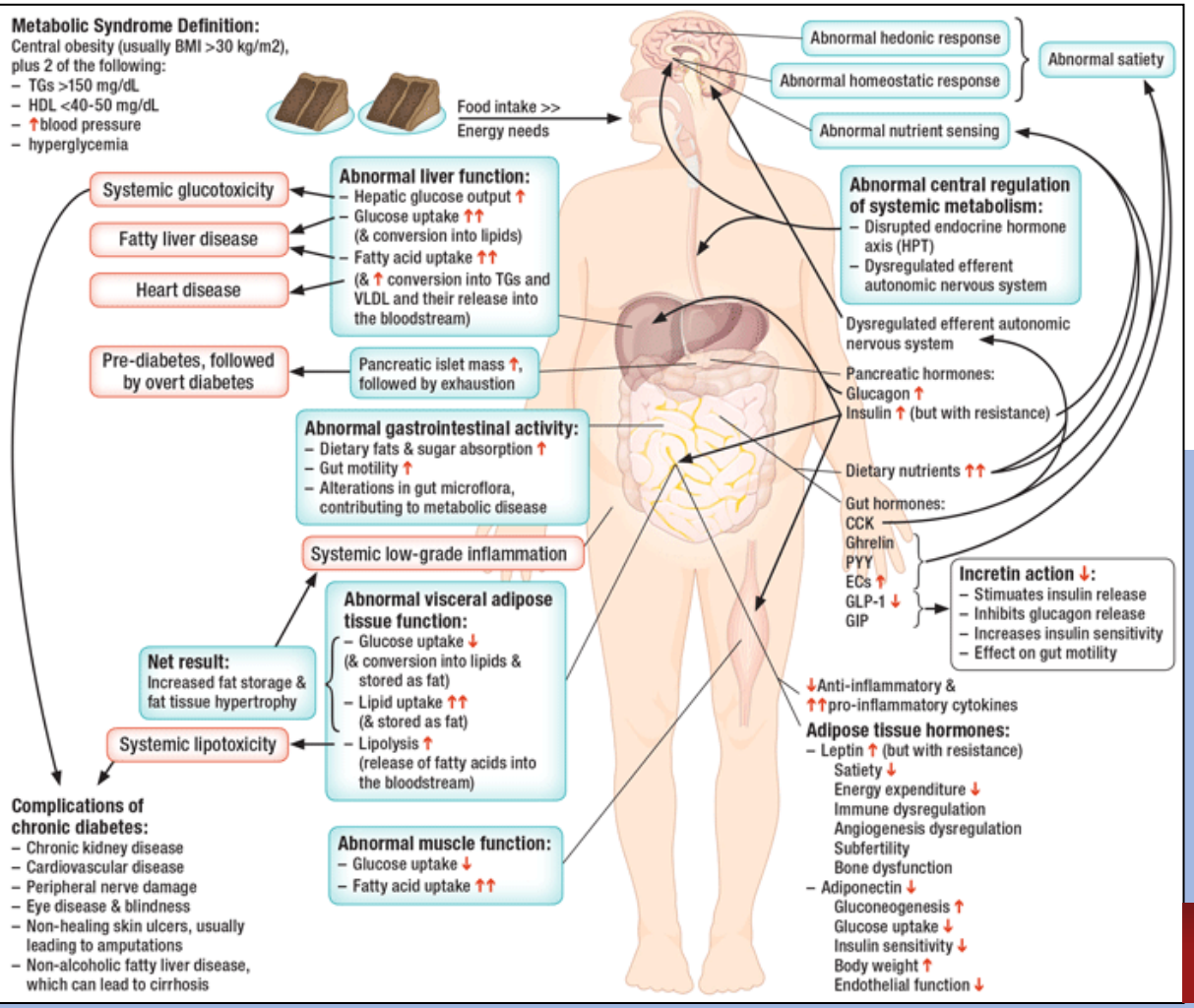


Consiglio Nazionale delle Ricerche

ibim cnr

OBESITA'

Secondo il WHO (World Health Organization), oltre un miliardo di persone risulta essere in sovrappeso e 300 milioni obese.



Diabete di tipo 2
Cardiopatie
Degenerazione del SNC
Tumori
Disfunzioni renali
Patologie polmonari

nature medicine

World Health Organization

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Current Alzheimer Research, 2015, *12*, 000-000 1

Insulin Resistance as Common Molecular Denominator Linking Obesity to Alzheimer's Disease

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nutrients

MDPI

Article

A Natural Dietary Supplement with a Combination of Nutrients Prevents Neurodegeneration Induced by a High Fat Diet in Mice

Domenico Nuzzo [1], Antonella Amato [2], Pasquale Picone [1], Simona Terzo [2], Giacoma Galizzi [1], Francesco Paolo Bonina [3], Flavia Mulè [2,†] and Marta Di Carlo [1,*,†]

Neurobiology of Disease 121 (2019) 296–304

Contents lists available at ScienceDirect

Neurobiology of Disease

journal homepage: www.elsevier.com/locate/ynbdi

Glucagon-like peptide-2 reduces the obesity-associated inflammation in the brain

Domenico Nuzzo[a], Sara Baldassano[b], Antonella Amato[b], Pasquale Picone[a], Giacoma Galizzi[a], Gaetano Felice Caldara[b], Marta Di Carlo[a], Flavia Mulè[b,*]

[a] Institute of Biomedicine and Molecular Immunology "Alberto Monroy" (IBIM), Consiglio Nazionale delle Ricerche (CNR), 90146 Palermo, Italy
[b] Department of Biological, Chemical and Pharmaceutical Sciences and Technologies (STEBICEF), University of Palermo, Italy

foods

MDPI

Review

Microalgae Nutraceuticals

Marcello Nicoletti

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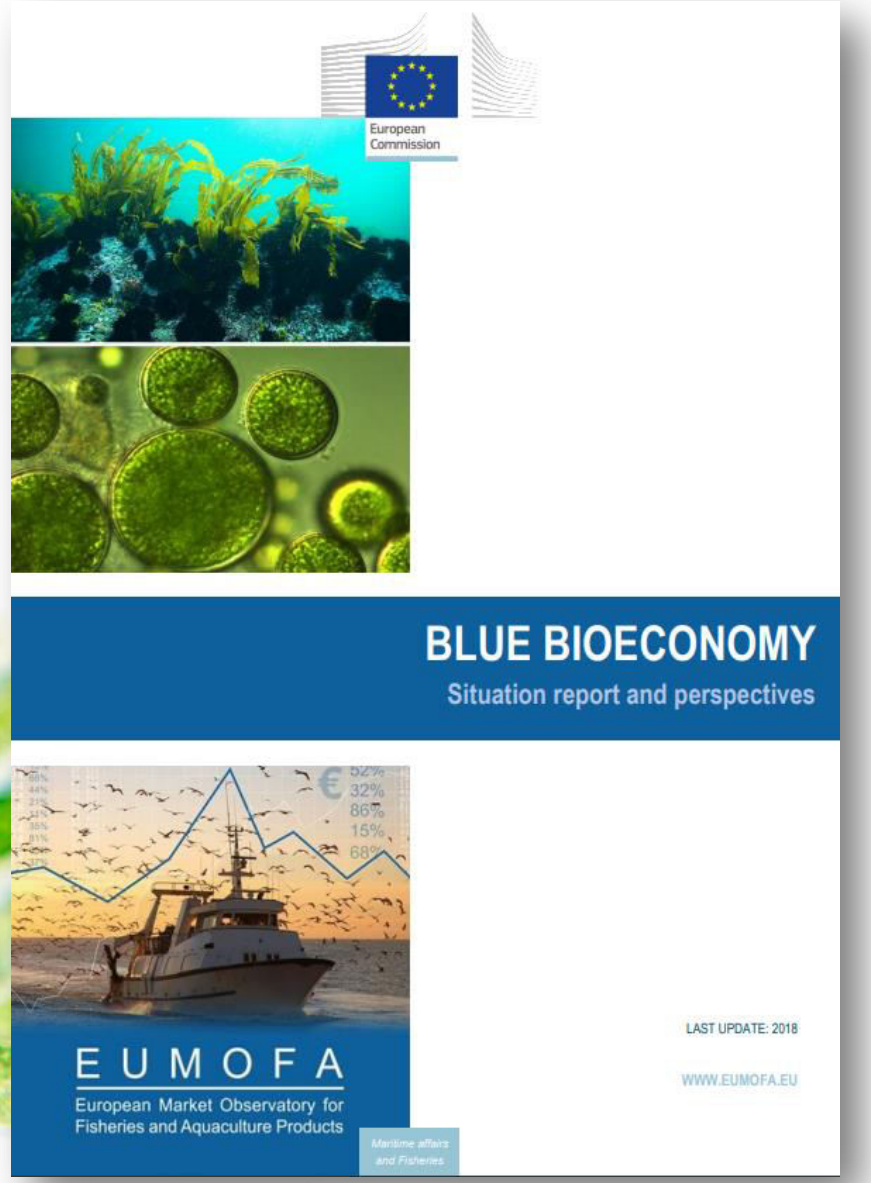
Academic Editor: Antonello Santini
Received: 23 June 2016; Accepted: 16 August 2016; Published: 22 August 2016

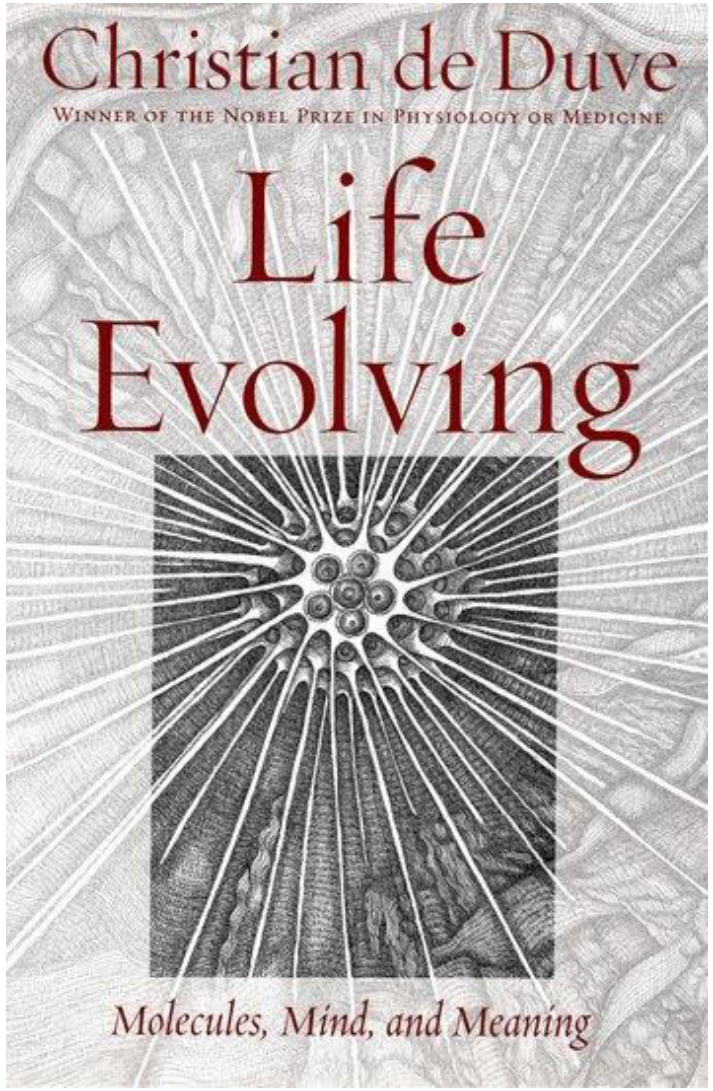
Abstract: Among the new entries in the food supplements sector, an important place must be assigned to nutraceuticals containing microalgae, nowadays accounting for a large and rapidly expanding market. The marketed products are mainly based on three production strains, i.e., Spirulina and Chlorella, followed at a distance by Klamath. It is a composite situation, since two of them are cyanobacteria and the second one is eukaryotic. The reality is that each presents similarities in shape and appearance concerning the marketed form and several utilizations, and peculiarities that need special attention and adequate studies. First, general information is reported about the current scientific knowledge on each microalga, in particular the nutritional value and properties in prevention and wellbeing. Second, original studies are presented concerning the quality control of marketed products. Quality control is a key argument in nutraceuticals validation. Microalgae are particular organisms that need specific approaches to confirm identity and validate properties. The proposed control of quality is based on microscopic analysis of the morphologic characteristics. The final parts of this paper are dedicated to the need for specificity in uses and claims and to considerations about the future of microalgae in food supplements.

Keywords: microalgae; Spirulina; Chlorella; Klamath; food supplement; quality control




Sapete ?!
Io mi curo con le alghe !

«Alle origini della vita: le alghe”
Biochimico belga **Christian de Duve** (1917-2013, Premio Nobel 1974 per la Medicina) si propone di chiarire il suo pensiero sulle origini della vita.



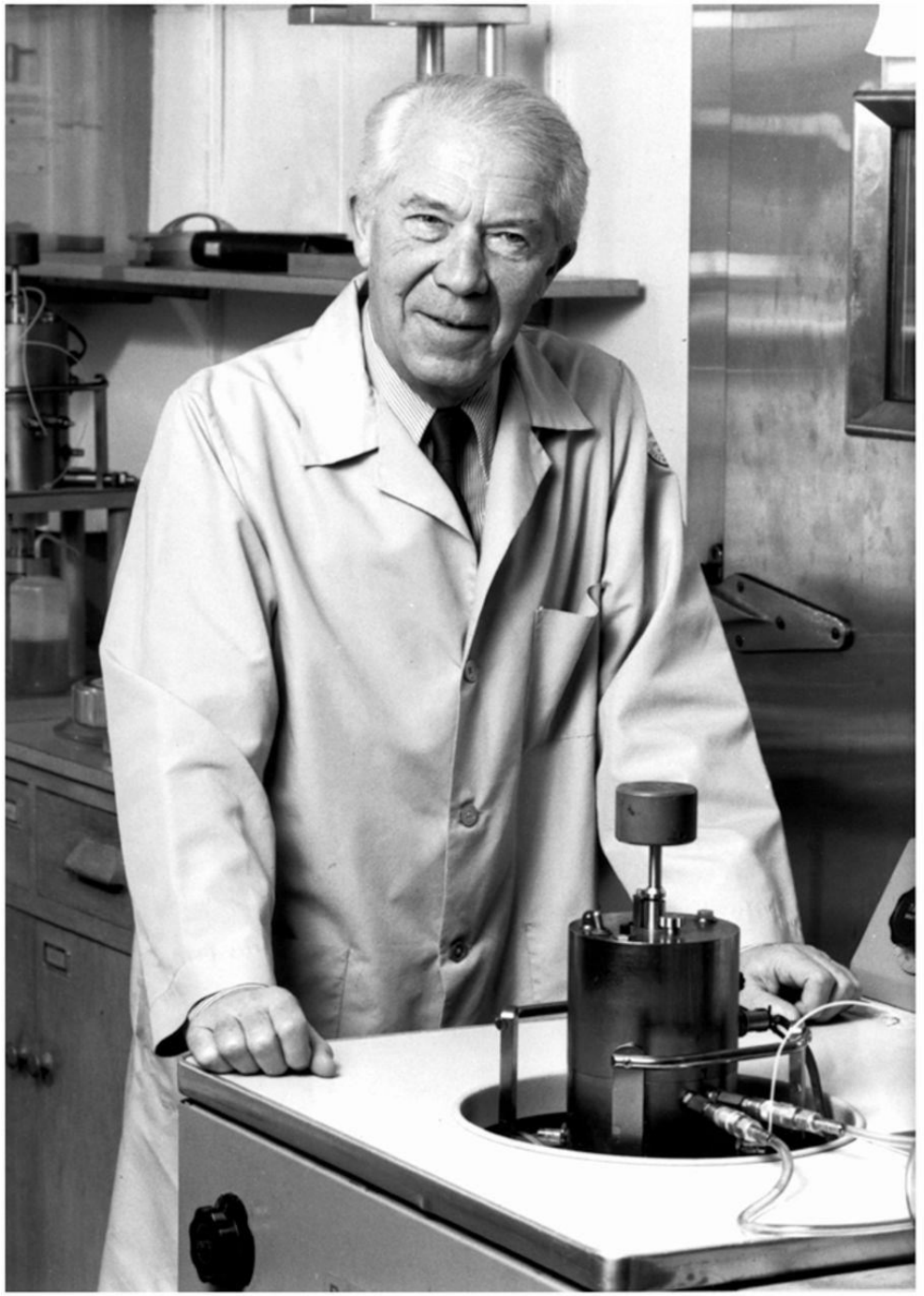
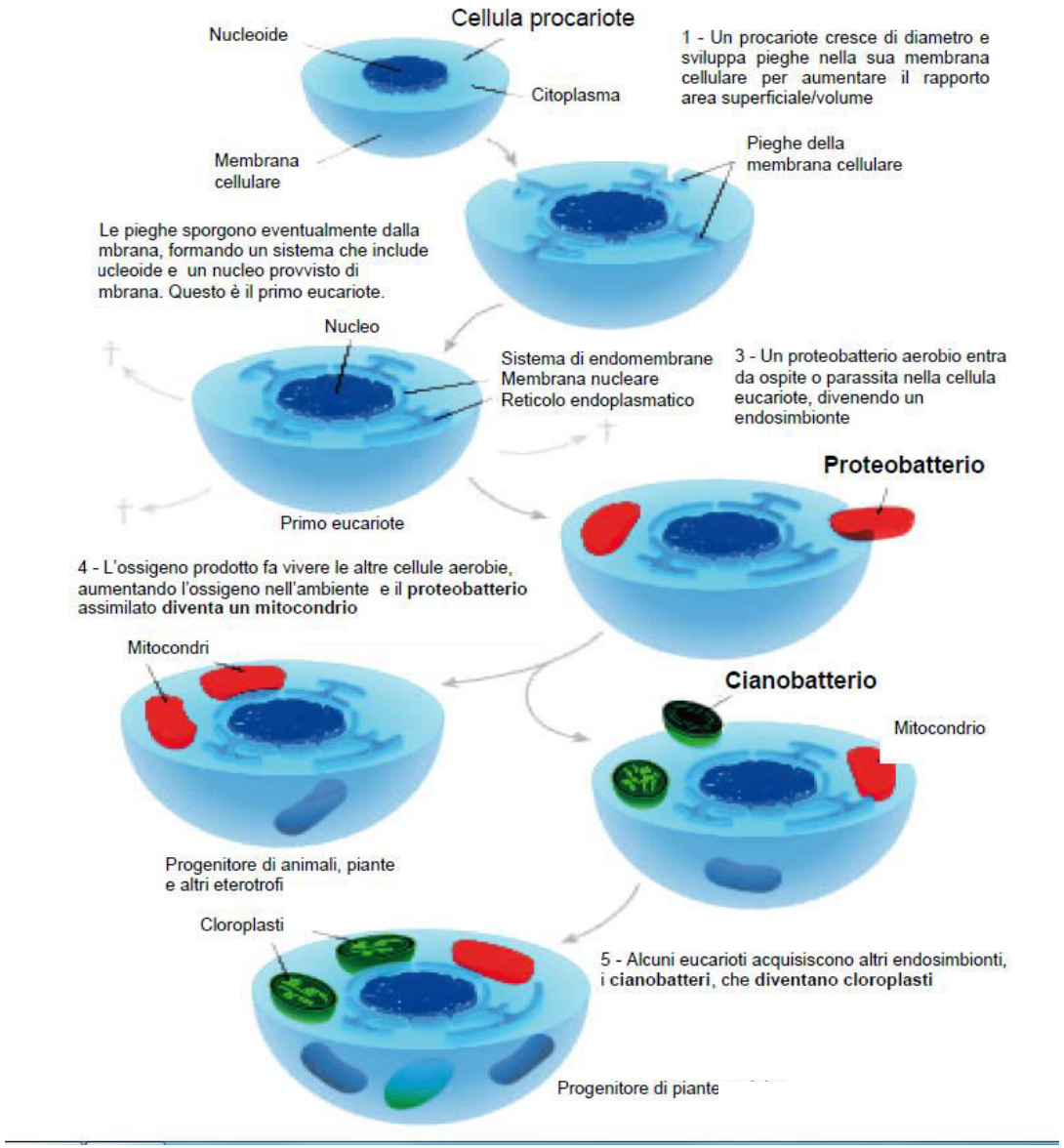
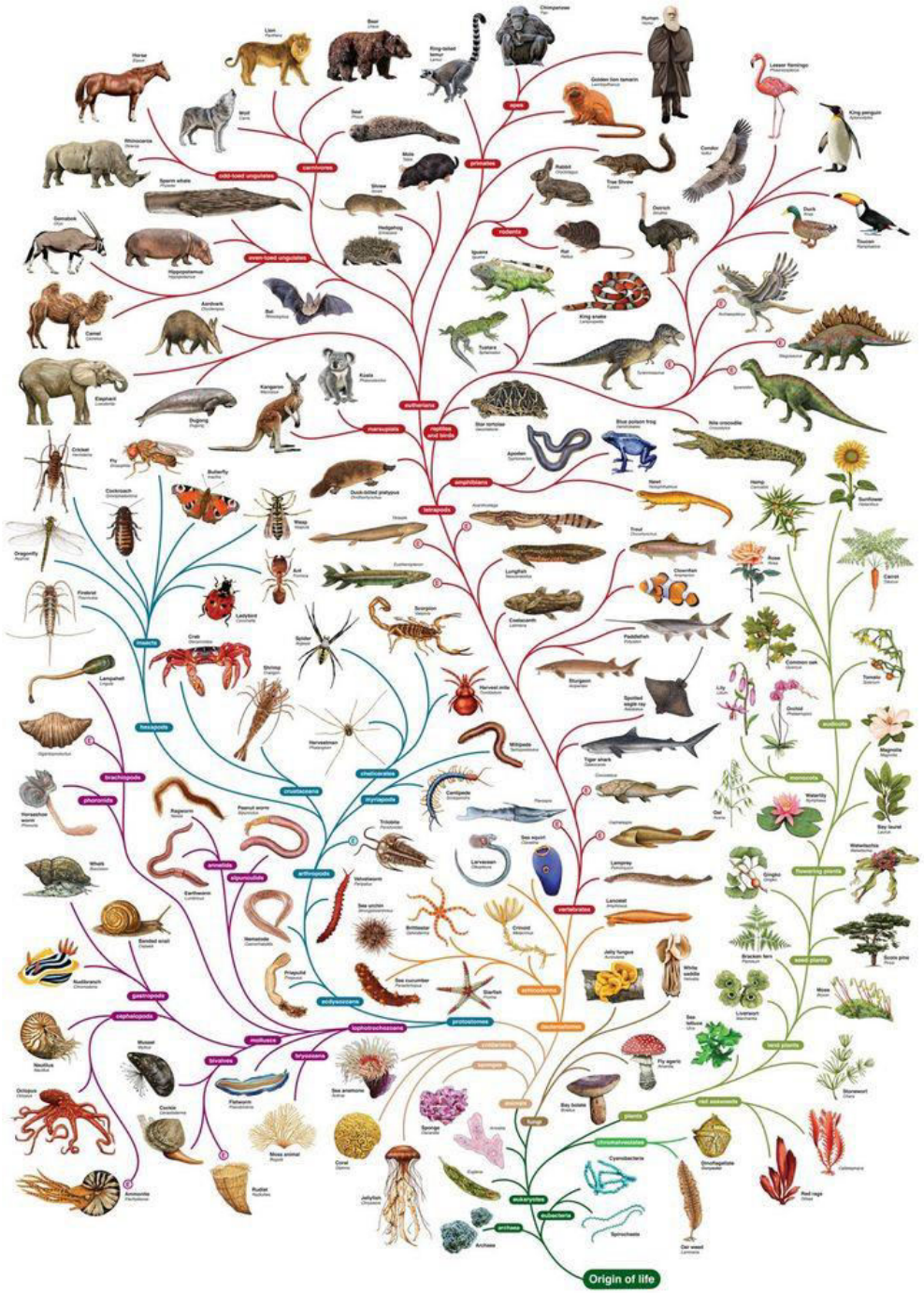
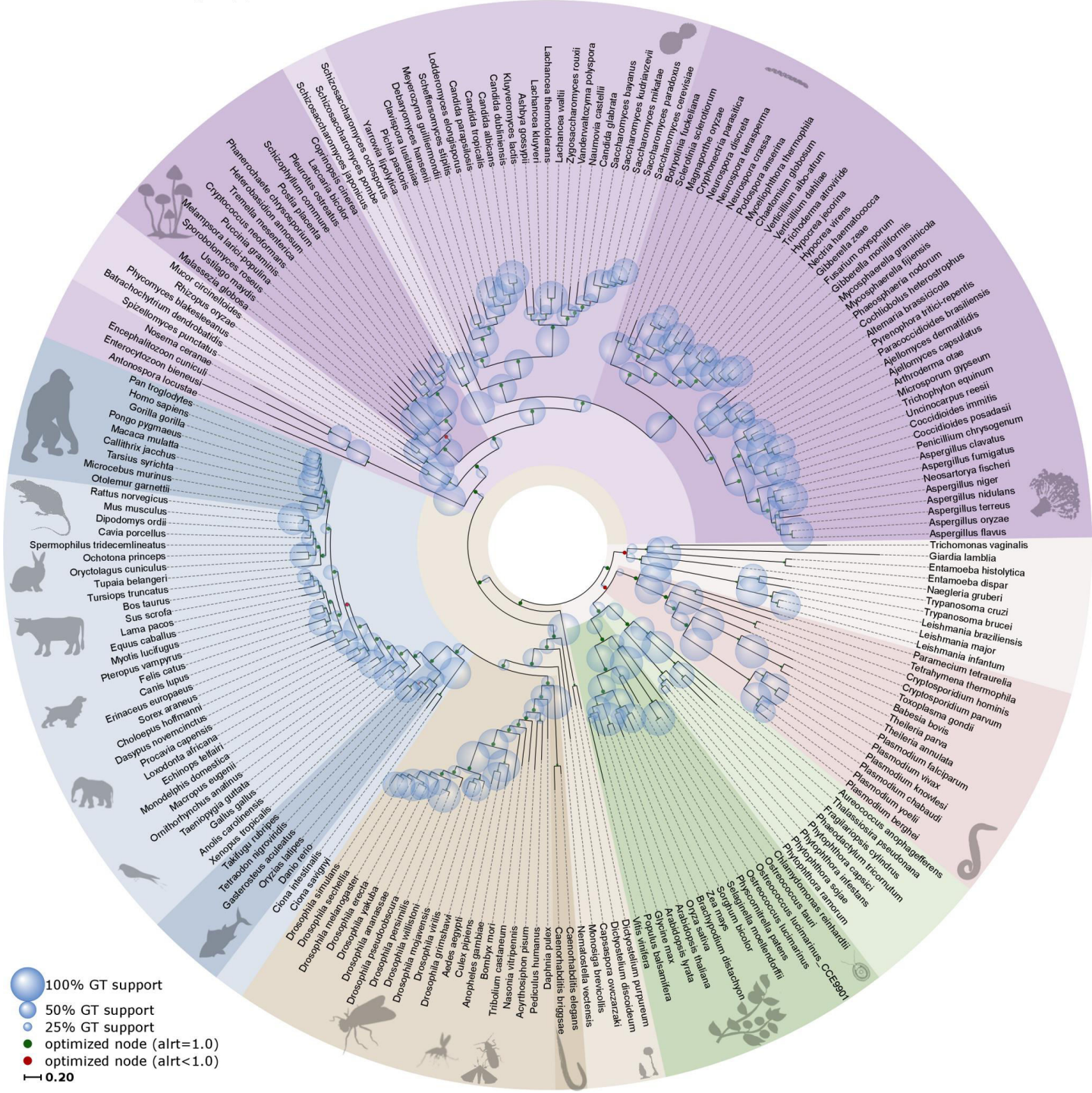


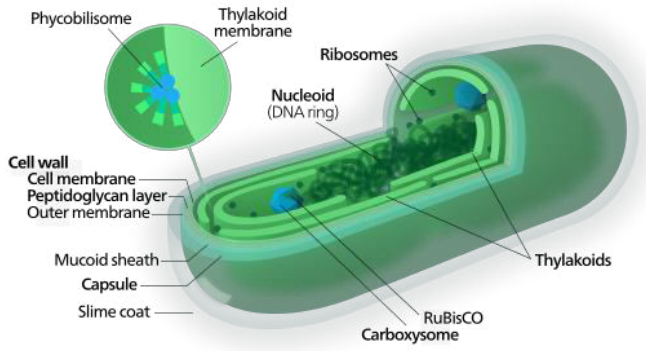
Photo courtesy of The Rockefeller University.

Lynn Margulis (1938- 2011) è stata una biologa si interessò all'endosimbiosi




Origin of life


100% GT support
50% GT support
25% optimized node (alrt=1.0)
optimized node (alrt<1.0)
0.20



Cianobatterio

Blooms

AFA

Aminoacidi Essenziali	
Isoleucina	29,3 mg/g
Triptofano	7.3 mg/g
Leucina	52,0 mg/g
Treonina	32,7 mg/g
Lisina	34,7 mg/g
Fenilalanina	25,3 mg/g
Metionina	7,3 mg/g
Valina	32 mg/g
Arginina	38 mg/g
Istidina	9,3 mg/g
Aminoacidi non essenziali	
Alanina	46,7 mg/g
Glicina	29,3 mg/g
A. Aspartico	7,3 mg/g
Prolina	28,7 mg/g
Cistina	2 mg/g
Serina	29,3 mg/g
A. Glutammico	4 mg/g
Tirosina	17,3 mg/g
Acidi Grassi Essenziali	
A. Grassi Saturi: • A.Palmitico • A.Miristico	18,4 mg/g 13,6 mg/g 2,5 mg/g
A. Grassi Monoinsaturi: • A.Oleico	5,8 mg/g 3,3 mg/g
A. Grassi Polinsaturi: • Omega 6 linoleico • Omega 3 alfa-linoleico	17,8 mg/g 3,8 mg/g 12,9 mg/g
EPA	0,5 mg/g
DHA	0,2 mg/g
Pigmenti	
Clorofilla	10-15 mg/g
Ficocianine	120-150 mg/g
Carotenoidi (alfa, gamma, cantaxantina, Astaxantina, Luteina, Zeaxantina, Licopene ecc.)	2,44 mg/g
Vitamine	
Vitamina A	407* RE*
Tiamina (B1)	5 mcg/g
Riboflavina	60 mcg/g
Niacina(B3)	0.15mcg/g
A.Pantotenico(B5)	7 mcg/g
Piridossina(B6)	11 mcg/g
A.folico	1 mcg/g
Cobalamina(B12)	3 mcg/g
Colina	2.3 mcg/g
Vitamina C	1 mcg/g
Vitamina D	1 UI/g
Vitamina E	0,15 mcg/g
Biotina (Vit.H)	0,3 mcg/g
Vitamina K	70 mcg/g
Minerali	
Alluminio	Tracce
Boro	10 mcg/g
Bromo	Tracce
Calcio	14 mcg/g
Cloro	400 mcg/g
Cobalto	2 mcg/g
Cromo	1 mcg/g
Fluoro	39 mcg/g
Ferro	350 mcg/g
Fosforo	6,5 mcg/g
Gallio	Tracce
Germanio	0,3 mcg/g
Iodio	1 mcg/g
Magnesio	2,2 mcg/g
Manganese	30 mcg/g
Molibdeno	3,5 mcg/g
Nichel	4 mcg/g
Potassio	30 mcg/g
Rame	5,5 mcg/g
Selenio	1 mcg/g
Silicio	220 mcg/g
Sodio	2,2 mcg/g
Stagno	0,5 mcg/g
Stronzio	Tracce
Titanio	20 mcg/g
Vanadio	3 mcg/g
Zinco	40 mcg/g
Zolfo	1 mcg/g


Bidighinzu: *Dolichospermum flos aquae* (3), *Microcystis flosaquae* (3)
Flumineddu: *Dolichospermum planctonicum* (2)
Cuga: *Dolichospermum planctonicum* (3), *Dolichospermum flos aquae* (3) *Aphanizomenon flos-aquae* (3), *Microcystis aeruginosa* (3)
Omodeo: *Dolichospermum spiroides* (3), *Microcystis aeruginosa* (3), *M. flos-aquae* (3)
Monteleone Roccadoria: *Dolichospermum spiroides* (3), *Microcystis aeruginosa* (3)
Casteldoria: *Dolichospermum flos aquae* (3), *Microcystis aeruginosa* (3), *M. flos-aquae* (3)
Santa Lucia: *Mycrocystis aeruginosa* (3)
Monte Pranu: *Dolichospermum planctonicum* (3), *M. aeruginosa* (3)
Coghinas: *Dolichospermum flos aquae* (3), *Microcystis aeruginosa* (3), *M. flos-aquae* (3), *Aphanizomenon flos-aquae* (3)
Cixerri: *Dolichospermum planctonicum* (3), *Mycrocystis aeruginosa* (3)
Is Barroccus: *Aphanizomenon flos-aquae* (3)
Surigheddu: *Aphanizomenon flos-aquae* (3)
Punta Gennarta: *Microcystis aeruginosa* (3)
Simbirizzi: *Oscillatoria tenuis* (5)
Flumendosa: *Oscillatoria tenuis* (5)
Mulargia: *Dolichospermum planctonicum* (2), *Dolichospermum flos-aquae* (2), *Microcystis aeruginosa* (3)
Gusana: *Microcystis aeruginosa* (3)
Liscia: *Dolichospermum planctonicum* (2), *Mycrocystis aeruginosa* (3)
Cedrino: *Dolichospermum planctonicum* (3), *Cylindrospermopsis raciborskii* (4), *Microcystis aeruginosa* (1,3), *Aphanizomenon flos-aquae* (3)
Nuraghe Pranu Antoni: *Microcystis aeruginosa* (3), *Dolichospermum spiroides* (3)
Posada: *Microcystis aeruginosa* (3), *Dolichospermum flos-aquae* (3)
Pattada: *Microcystis aeruginosa* (3)


Maggiore: *Dolichospermum lemmermannii* (10), *Aphanizomenon flos-aquae* (4), *Microcystis aeruginosa* (2)
Caldonazzo: *Aphanizomenon flos-aquae* (22), *Microcystis aeruginosa* (22)
Idro: *Dolichospermum spiroides* (1)
Levico: *Aphanizomenon flos-aquae* (22)
Canzolino: *Microcystis aeruginosa* (22)
Serraia: *Microcystis aeruginosa* (22), *Aphanizomenon flos-aquae* (22), *Dolichospermum spiroides* (1)
Iseo: *Dolichospermum flos-aquae* (2), *Dolichospermum lemmermannii* (8), *Microcystis aeruginosa* (3), *Oscillatoria tenuis* (2), *Limnothrix redekei* (2)
Garda: *Dolichospermum lemmermannii* (10), *Microcystis aeruginosa* (7)
Pusiano: *Microcystis aeruginosa* (13), *Aphanizomenon flos-aquae* (13), *Dolichospermum viguieri* (13)
Como: *Dolichospermum flos-aquae* (11,12), *Microcystis aeruginosa* (11,8), *Microcystis flos-aquae* (11)
Monate: *Microcystis aeruginosa* (14), *Dolichospermum spiroides* (14)
Lugano: *Aphanizomenon flos-aquae* (6,4), *Microcystis flos-aquae* (2), *Limnothrix redekei* (2)
Massaciuccoli: *Microcystis aeruginosa* (15)
Polverina: *Microcystis aeruginosa* (15)
Castreccioni: *Microcystis aeruginosa* (16)
Liscione: *Microcystis aeruginosa* (15)
Trasimeno: *Microcystis aeruginosa* (15), *Cylindrospermopsis raciborskii* (5)
Albano: *Aphanizomenon ovalisporum* (9), *Cylindrospermopsis raciborskii* (5,17),
Vico: *Aphanizomenon ovalisporum* (23), *Limnothrix redekei* (23)
Nemi: *Aphanizomenon flos-aquae v. klebahnii* (24), *Limnothrix redekei* (24)
Averno: *Aphanizomenon ovalisporum* o *Cylindrospermopsis raciborskii* (18)
Arancio: *Microcystis aeruginosa* (19), *Microcystis wesenbergii* (20)
Rosamarina: *Microcystis aeruginosa* (21)
Piano degli Albanesi: *Microcystis aeruginosa* (20)
Rubino: *Dolichospermum flos-aquae* (20)
Soprano: *Dolichospermum flos-aquae* (20), *Microcystis flos-aquae* (20)
Cecita: *Microcystis aeruginosa* (15)


a
b
c
d

Hindawi
Oxidative Medicine and Cellular Longevity
Volume 2018, Article ID 9089016, 14 pages
https://doi.org/10.1155/2018/9089016

Hindawi

Research Article

Effects of the *Aphanizomenon flos-aquae* Extract (Klamin®) on a Neurodegeneration Cellular Model

D. Nuzzo,[1] G. Presti,[2] P. Picone,[1] G. Galizzi,[1] E. Gulotta,[2] S. Giuliano,[2] C. Mannino,[2] V. Gambino,[2] S. Scoglio,[3] and M. Di Carlo[1]

[1]*Istituto di Biomedicina ed Immunologia Molecolare (IBIM) "Alberto Monroy", CNR, Via Ugo La Malfa 153, 90146 Palermo, Italy*
[2]*Chemical Laboratory of Palermo, Italian Agency of Customs and Monopolies, Via Crispi, 143, 90133 Palermo, Italy*
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Academic Editor: Francisco Jaime Bezerra Mendonça Júnior

Cyanobacteria have been recognized as a source of bioactive molecules to be employed in nutraceuticals, pharmaceuticals, and functional foods. An extract of *Aphanizomenon flos-aquae* (AFA), commercialized as Klamin®, was subjected to chemical analysis to determine its compounds. The AFA extract Klamin® resulted to be nontoxic, also at high doses, when administered onto LAN5 neuronal cells. Its scavenging properties against ROS generation were evaluated by using DCFH-DA assay, and its mitochondrial protective role was determined by JC-1 and MitoSOX assays. Klamin® exerts a protective role against beta amyloid- (Aβ-) induced toxicity and against oxidative stress. Anti-inflammatory properties were demonstrated by NFβB nuclear localization and activation of IL-6 and IL-1β inflammatory cytokines through ELISA. Finally, by using thioflavin T (ThT) and fluorimetric measures, we found that Klamin® interferes with Aβ aggregation kinetics, supporting the formation of smaller and nontoxic structures compared to toxic Aβ aggregates alone. Altogether, these data indicate that the AFA extract may play a protective role against mechanisms leading to neurodegeneration.

Consiglio Nazionale delle Ricerche

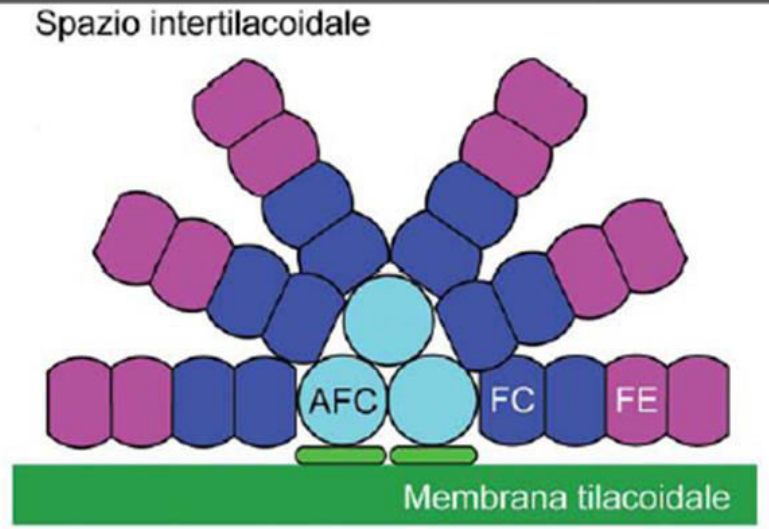
Istituto di Biomedicina e Immunologia Molecolare "Alberto Monroy" - CNR

ibim cnr

AGENZIA DOGANE MONOPOLI

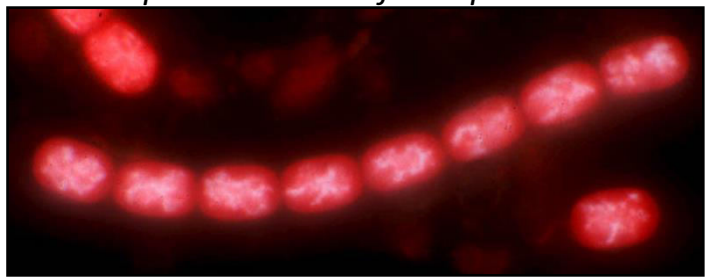
NUTRIGEA®

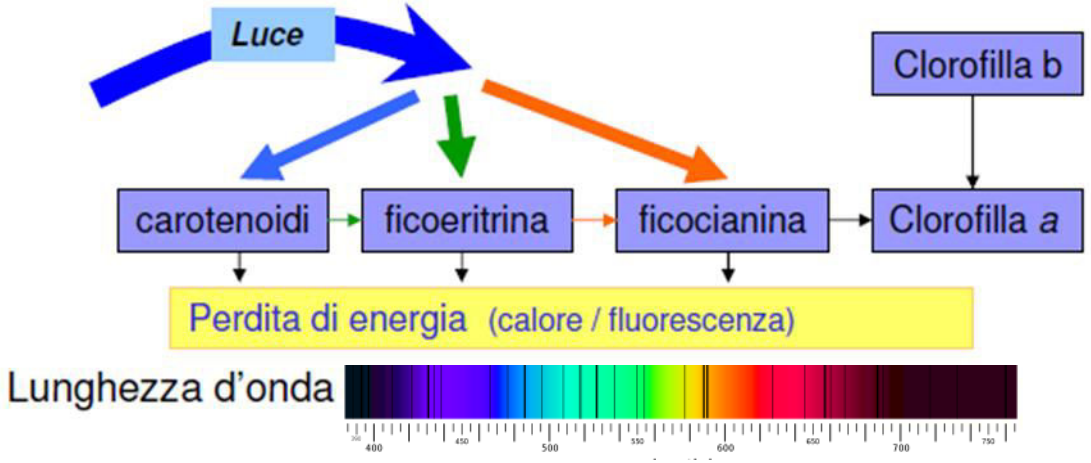
Ficocomplesso



AFC: Alloficocianina; FC: Ficocianina
FE: Ficoeritrina

Aphanizomenon flos aquae

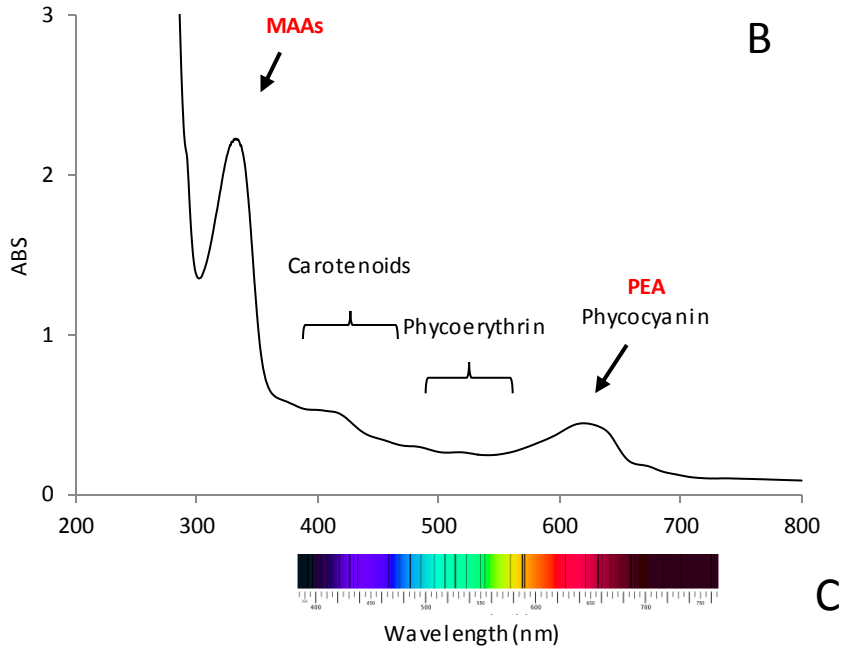




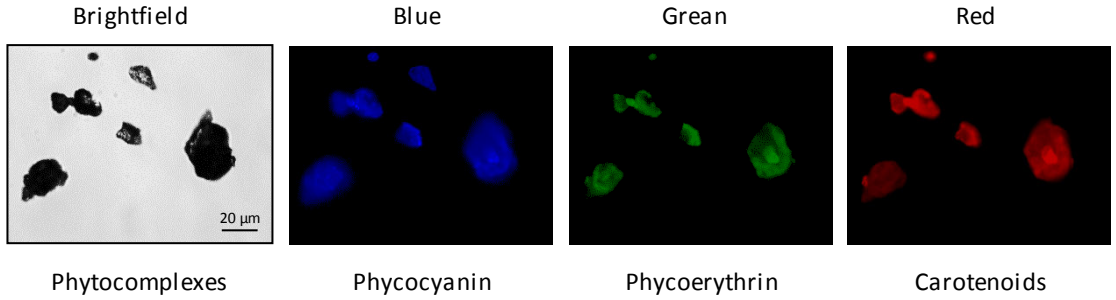
Le ficocianine e ficoeritrine hanno effetti Antiinfiammatori e antiossidanti

Caratterizzazione

A



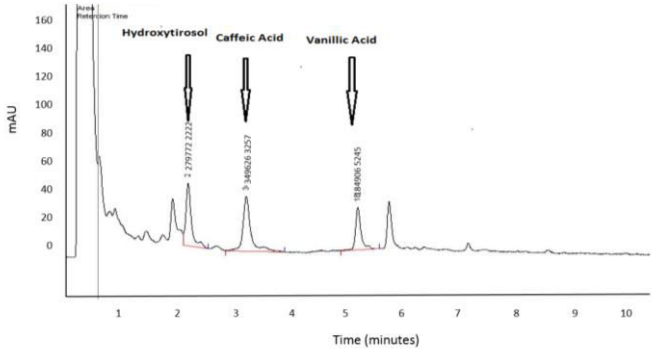
B



C

Elemets	AFA (ppm)
Ti	0.4
Mo	0.5
W	0.2
B	0.6
Al	1.5
Mn	2.2
Co	0.1
Ni	0.3
Zn	0.15
Cu	0.2
As	0.4
Se	0.06
Rb	0.25
Sr	4.5
Ba	0.5

D



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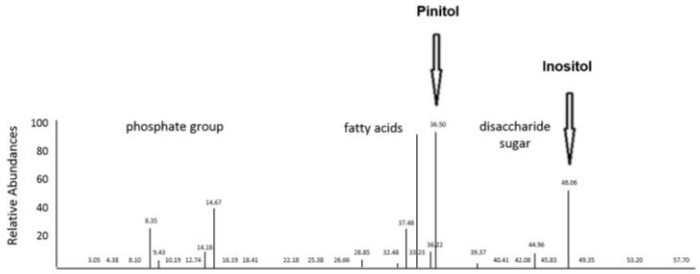
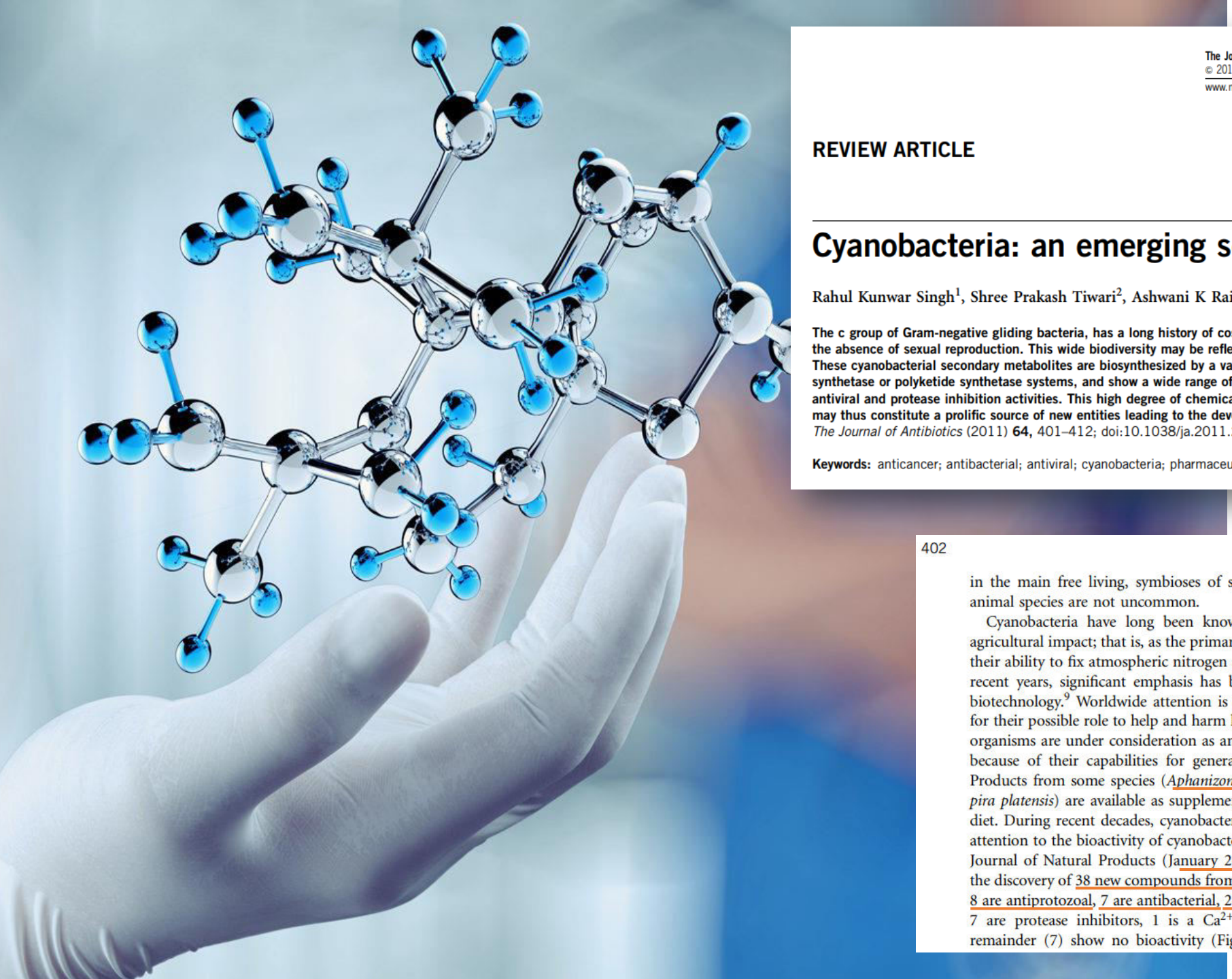


Il Klamin è ricco di biomolecole e minerali

D. Nuzzo** et al. Oxy. Med. Cell. Long. **2018



The Journal of Antibiotics (2011) 64, 401–412

www.nature.com/ja

REVIEW ARTICLE

Cyanobacteria: an emerging source for drug discovery

Rahul Kunwar Singh[1], Shree Prakash Tiwari[2], Ashwani K Rai[3] and Tribhuban M Mohapatra[1]

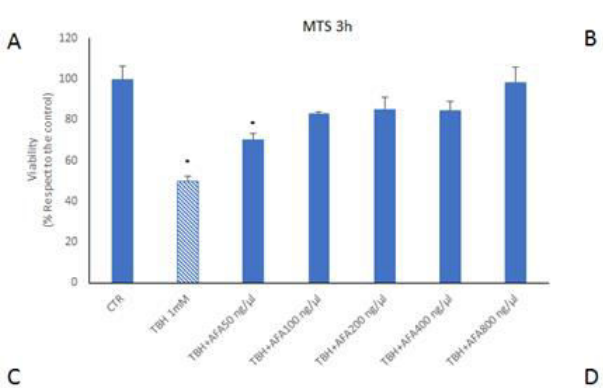
The c group of Gram-negative gliding bacteria, has a long history of cosmopolitan occurrence. It has great biodiversity despite the absence of sexual reproduction. This wide biodiversity may be reflected in the wide spectrum of its secondary metabolites. These cyanobacterial secondary metabolites are biosynthesized by a variety of routes, notably by non-ribosomal peptide synthetase or polyketide synthetase systems, and show a wide range of biological activities including anticancer, antibacterial, antiviral and protease inhibition activities. This high degree of chemical diversity in cyanobacterial secondary metabolites may thus constitute a prolific source of new entities leading to the development of new pharmaceuticals.
The Journal of Antibiotics (2011) **64,** 401–412; doi:10.1038/ja.2011.21; published online 6 April 2011

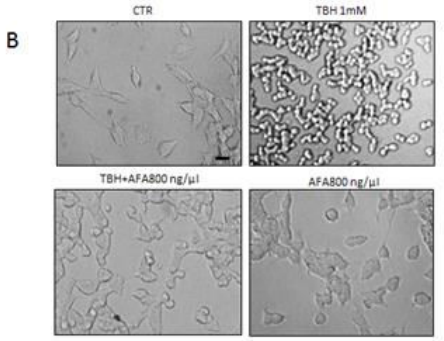
Keywords: anticancer; antibacterial; antiviral; cyanobacteria; pharmaceuticals; protease inhibitors

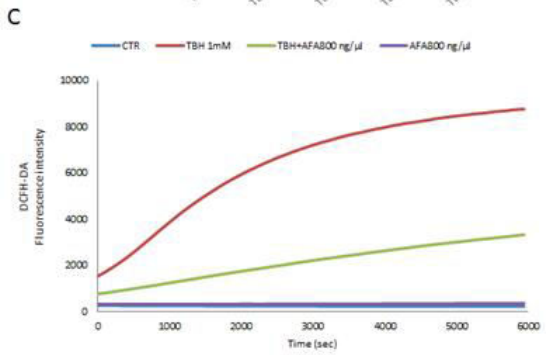
in the main free living, symbioses of some species with plant and animal species are not uncommon.

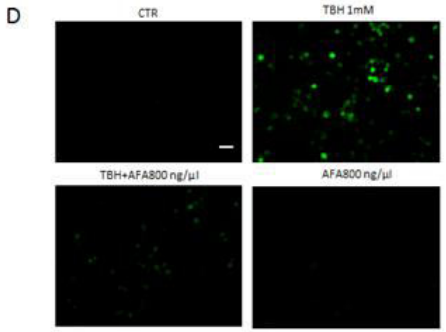
Cyanobacteria have long been known for their ecological and agricultural impact; that is, as the primary colonizers of an ecosystem, their ability to fix atmospheric nitrogen and solubilize phosphates. In recent years, significant emphasis has been given to cyanobacterial biotechnology.[9] Worldwide attention is drawn toward cyanobacteria for their possible role to help and harm humankind. Nowadays, these organisms are under consideration as an alternative source of energy because of their capabilities for generating hydrogen and ethanol. Products from some species (*Aphanizomenon flos-aquae* and *Arthospira platensis*) are available as supplements to provide a protein-rich diet. During recent decades, cyanobacteriologists have started to pay attention to the bioactivity of cyanobacteria.[10,11] A literature study of Journal of Natural Products (January 2007–October 2008), revealed the discovery of 38 new compounds from cyanobacteria among which 8 are antiprotozoal, 7 are antibacterial, 2 are antiviral, 6 are cytotoxic, 7 are protease inhibitors, 1 is a Ca^{2+} channel inhibitor and the remainder (7) show no bioactivity (Figure 1). The high degree of

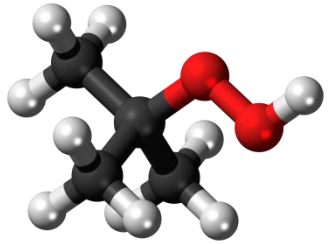
Recupero da danno Stress



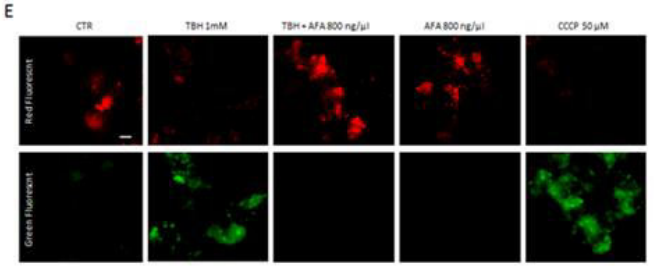


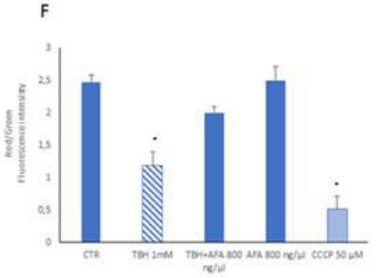


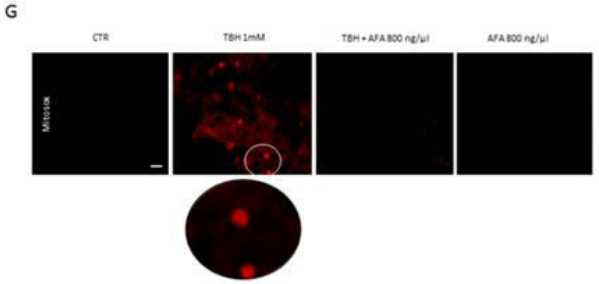


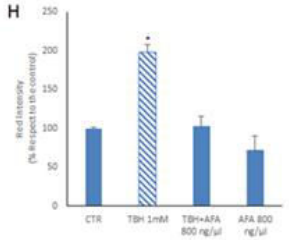


In presenza di Klamin viene recuperata la vitalità cellulare indotta dall'agente ossidante (TBH).
Quindi tali estratti svolgono un ruolo protettivo nei confronti di agenti ossidanti.









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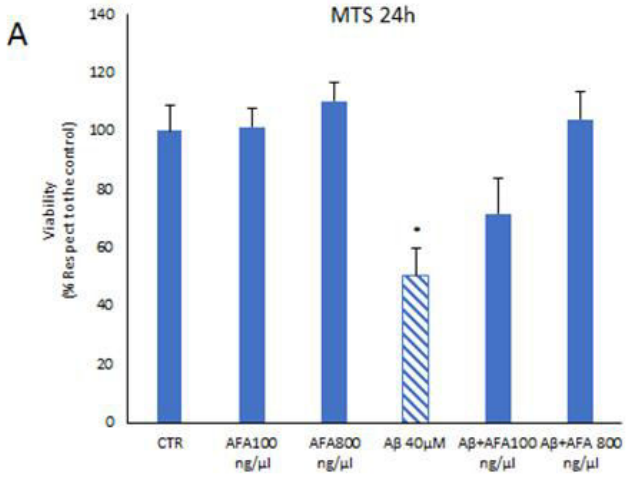
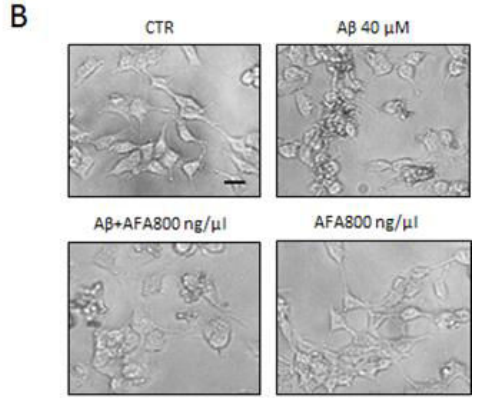
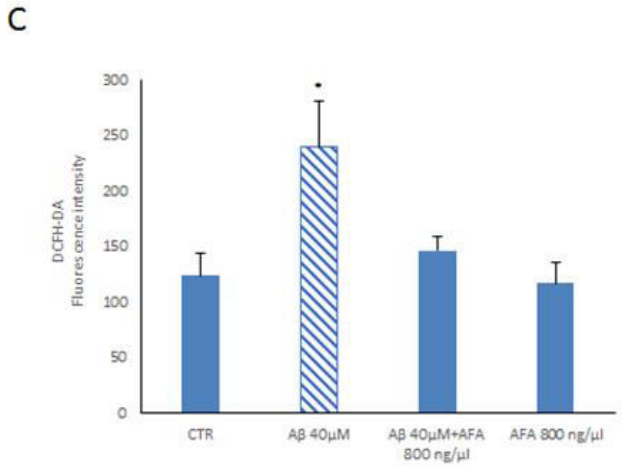
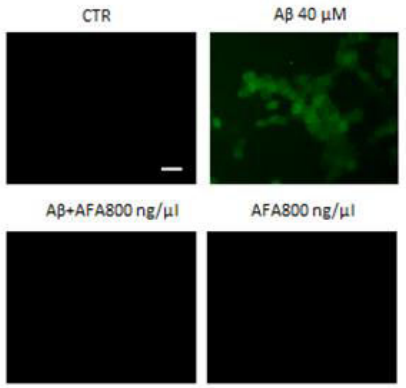
Recupero da danno Stress

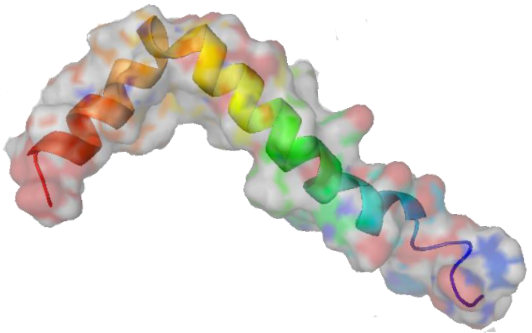








In presenza di Klamin viene recuperata la vitalità cellulare indotta dall'agente ossidante (Aβ).
Quindi tali estratti svolgono un ruolo protettivo nei confronti di agenti stressogeni.



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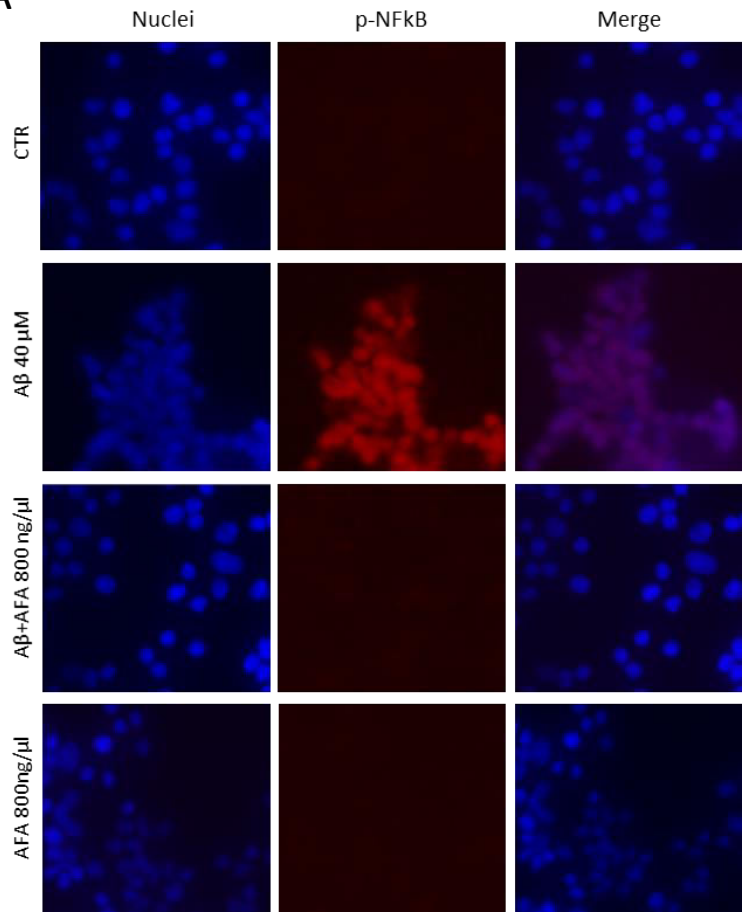
Mitiga infiammazione indotti dal β-peptide

A



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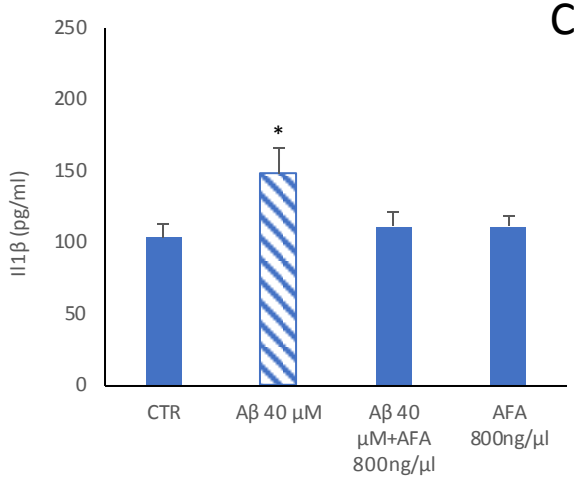

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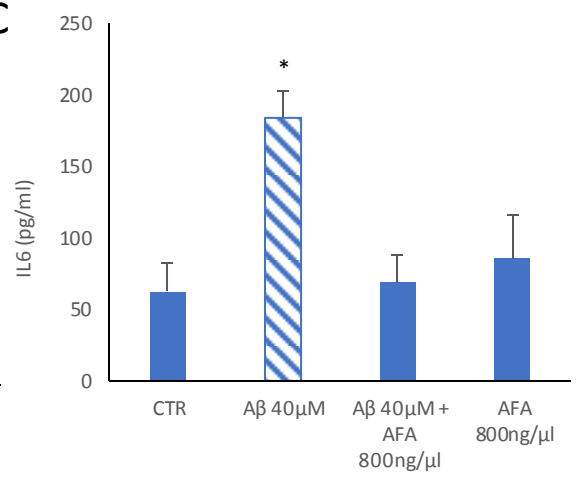
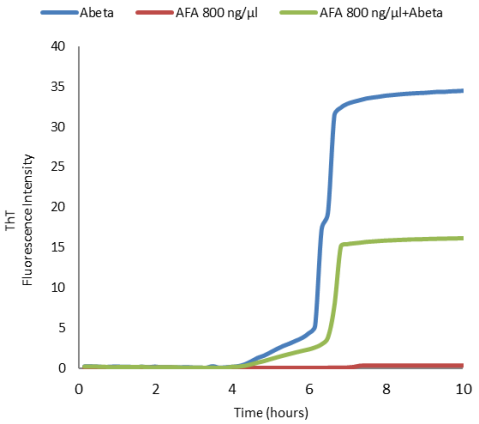


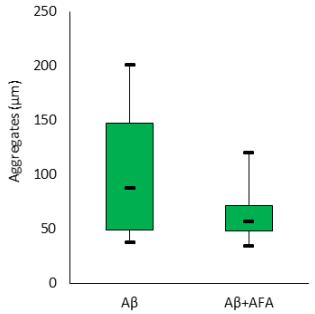
Il Klamin riducone significativamente l'espressione di citochine proinfiammatorie le quali sono sotto il diretto controllo di NF-kB.

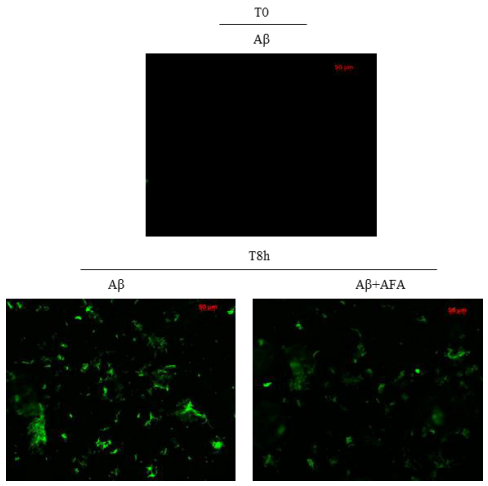
D. Nuzzo *et al. Oxy. Med. Cell. Long.* ***2018***

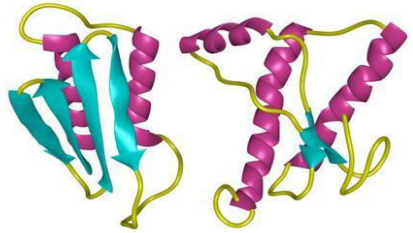
Impedisce aggregazione di Aβ

A









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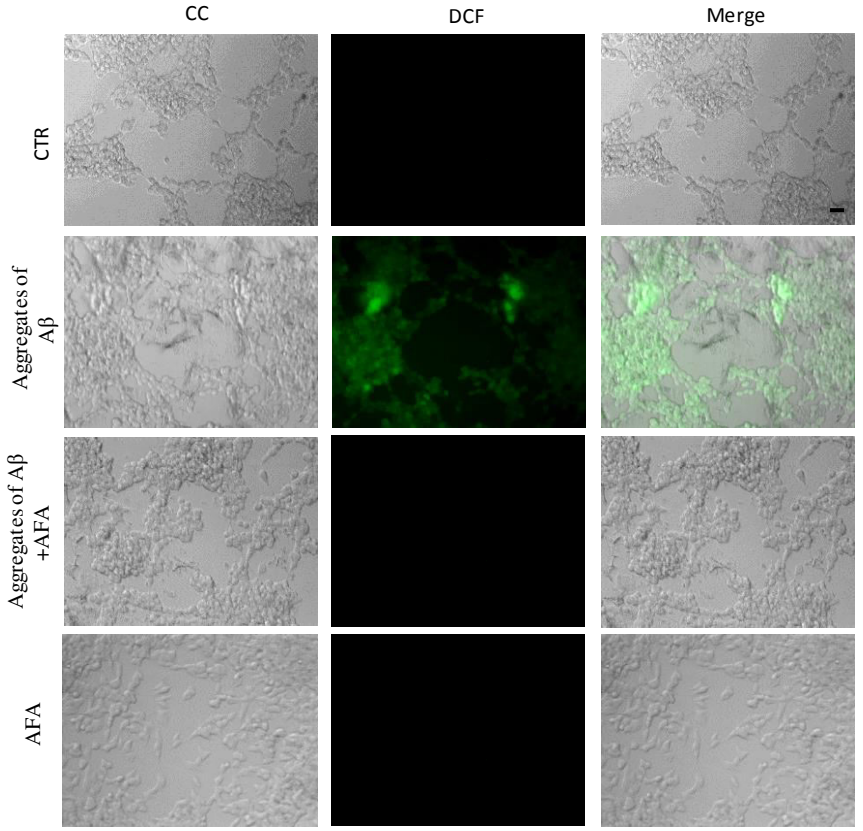

I risultati indicano che la presenza di Klamin la cinetica di aggregazione di Aβ avviene diversamente.

Gli aggregati che si sono formati in presenza degli estratti non sono tossici.

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La teoria del contesto

Le caratteristiche salutari di una molecola non dipendono solo dalla sua natura chimica ma dal contesto in cui essa è presente

Nutrients **2013**, *5*, 4284-4304; doi:10.3390/nu5114284

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nutrients

ISSN 2072-6643

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Review

Synthetic or Food-Derived Vitamin C—Are They Equally Bioavailable?

Anitra C. Carr * and Margreet C. M. Vissers

Centre for Free Radical Research, Department of Pathology and Biomedical Science, University of Otago, Christchurch, P.O. Box 4345, Christchurch 8140, New Zealand; E-Mail: margreet.vissers@otago.ac.nz

* Author to whom correspondence should be addressed; E-Mail: anitra.carr@otago.ac.nz; Tel.: +64-3-378-6498; Fax: +64-3-378-6540.

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journal homepage: www.elsevier.com/locate/yabbi

Differential effects of natural and synthetic vitamin E on gene transcription in murine T lymphocytes

Sung Nim Han [b], Eunice Pang [a], Jean-Marc Zingg [a], Simin Nikbin Meydani [a], Mohsen Meydani [a], Angelo Azzi [a,*]

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[b] Department of Food and Nutrition, College of Human Ecology, Seoul National University, Seoul, South Korea

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Received 24 November 2009
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Keywords:
RRR-α-tocopherol
Gene expression
Synthetic α-tocopherol
T-cell

ABSTRACT

Mice were supplemented with low and high doses of natural and synthetic vitamin E. T cells from the spleen isolated and stimulated with plate-bound anti-CD3 and soluble anti-CD28, and gene expression changes assessed by gene array experiments. The data obtained indicate significant qualitative and quantitative differences between the two vitamin forms in regulating gene expression in response to T-cell stimulation. Marker genes have been found whose expression can be considered significant in establishing the level of, and response to vitamin E for both natural and synthetic vitamin E supplementation; unique markers for synthetic vitamin E supplementation and unique markers for natural vitamin E supplementation have been identified.

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Free Radical Biology & Medicine 40 (2006) 2080–2091

www.elsevier.com/locate/freeradbiomed

Original Contribution

Cigarette smokers differ in their handling of natural (*RRR*) and synthetic (*all rac*) α-tocopherol: A biokinetic study in apoE4 male subjects

Anna R. Proteggente [a], Cristina Rota [b], John Majewicz [b], Gerald Rimbach [b], Anne Marie Minihane [b], Klaus Kraemer [c], John K. Lodge [a,*]

[a] Centre for Nutrition and Food Safety, School of Biomedical and Molecular Sciences, University of Surrey, Guildford, Surrey GU2 7XH, UK
[b] Hugh Sinclair Human Nutrition Unit, School of Food Biosciences, University of Reading, Reading RG6 6AP, Berkshire, UK
[c] BASF Aktiengesellschaft, MEM/F-D 205, 67056 Ludwigshafen, Germany

Received 14 April 2005; revised 20 January 2006; accepted 7 February 2006
Available online 28 February 2006

Abstract

We have compared the biokinetics of deuterated natural (*RRR*) and synthetic (*all rac*) α-tocopherol in male apoE4-carrying smokers and nonsmokers. In a randomized, crossover study subjects underwent two 4-week treatments (400 mg/day) with undeuterated *RRR*- and *all rac*-α-tocopheryl acetate around a 12-week washout. Before and after each supplementation period subjects underwent a biokinetic protocol (48 h) with 150 mg deuterated *RRR*- or *all rac*-α-tocopheryl acetate. During the biokinetic protocols, the elimination of endogenous plasma α-tocopherol was significantly faster in smokers ($P < 0.05$). However, smokers had a lower uptake of deuterated *RRR* than nonsmokers, but there was no difference in uptake of deuterated *all rac*. The supplementation regimes significantly raised plasma α-tocopherol ($P < 0.001$) with no differences in response between smokers and nonsmokers or between α-tocopherol forms. Smokers had significantly lower excretion of α-carboxyethyl-hydroxychroman than nonsmokers following supplementation ($P < 0.05$). Nonsmokers excreted more α-carboxyethyl-hydroxychroman following *RRR* than *all rac*; however, smokers did not differ in excretion between forms. At baseline, smokers had significantly lower ascorbate ($P < 0.01$) and higher F_2-isoprostanes ($P < 0.05$). F_2-isoprostanes in smokers remained unchanged during the study, but increased in nonsmokers following α-tocopherol supplementation. These data suggest that apoE4-carrying smokers and nonsmokers differ in their handling of natural and synthetic α-tocopherol.

Keywords: Tocopherol; Deuterated; Biokinetics; Smokers; apoE genotype; Oxidative stress; α-CEHC; Free radical

Brazilian Dental Journal (2018) 29(5): 459-464
http://dx.doi.org/10.1590/0103-6440201802172

ISSN 0103-6440

Antibacterial Efficacy of Synthetic and Natural-Derived Novel Endodontic Irrigant Solutions

Larissa Tais Soligo[1], Edilėia Lodi1, Ana Paula Farina[1], Matheus Albino Souza[1], Cristina de Mattos Pimenta Vidal[2], Doglas Cecchin[1]

[1]Department of Restorative Dentistry, School of Dentistry, UPF - Universidade de Passo Fundo, Passo Fundo, Brazil
[2]Department of Operative Dentistry, College of Dentistry and Dental Clinics, University of Iowa, Iowa City, IA, USA

Correspondence: Dr. Doglas Cecchin, BR 285, Km 171, 99052-900, Passo Fundo, RS, Brasil. Tel.: +55-54-3316-8402. e-mail address: doglas@upf.br

The aim of this study was to compare the efficacy of grape seed extract (GSE), calcium hypochlorite [$Ca(ClO)_2$], and sodium hypochlorite (NaOCl) irrigant solutions with rotary or reciprocating instrumentation for disinfection of root canals inoculated with *Enterococcus faecalis*. The mesiobuccal root canals of mandibular molars were prepared and inoculated with *Enterococcus faecalis* for 21 days. The roots were then randomly divided into the following eight experimental groups (n=11) according to the instrumentation technique and disinfection protocol: ProTaper Next or Reciproc R25 with sodium chloride (control group), 6% NaOCl, 6% $Ca(ClO)_2$, or 50% GSE used for irrigation during instrumentation. The antimicrobial activity was determined on the basis of a reduction in colony-forming units (CFUs) counted on bacterial samples collected before and after root canal instrumentation and expressed as a percentage of reduction. Data were evaluated by two-way ANOVA followed by Tukey HSD post-hoc tests ($p<0.05$). No significant differences were observed in bacterial reduction between the ProTaper Next and Reciproc R25 systems ($p>0.05$), regardless of the irrigant solution used. Furthermore, all active solutions (6% NaOCl, 50% GSE, and 6% $Ca(ClO)_2$) showed similar potential to reduce bacterial counts ($p>0.05$) and were significantly more effective than sodium chloride (control) ($p<0.05$). The results suggest that the GSE and $Ca(ClO)_2$ have potential clinical application as irrigant solutions in endodontic therapy since they present bactericidal efficacy against *Enterococcus faecalis*.

Key Words: calcium hypochlorite, grape seed extract, reciprocating motion, rotary instruments, sodium hypochlorite.

Concludendo

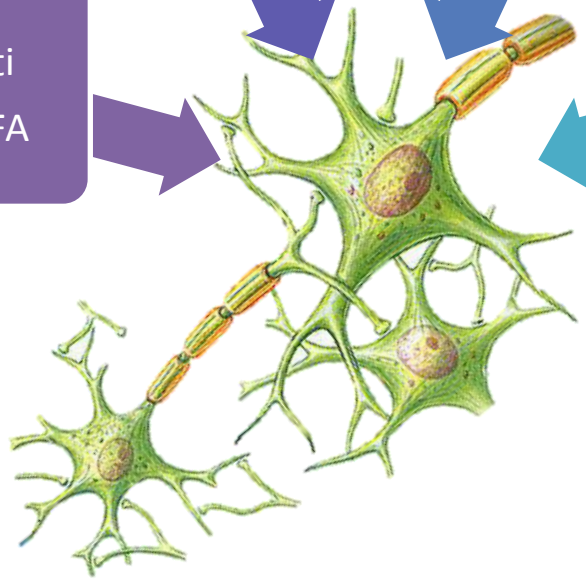
Potere antiossidante

Protezione del mitocondrio

Ricchezza microelementi

MAAs; PEA; AFA

Anti-infiammatorio



D. Nuzzo** et al. Oxy. Med. Cell. Long. **2018

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AGENZIA DOGANE MONOPOLI

Neuroprotezione in C57BL6/Obesi

Controllo

Obeso

Obeso
+ Klamin

Peso
Food Intake
Glicemia basale
Curva da carico
Comportamento

Sacrificio a 7 mesi

Sangue

Cervello

Marker

Metabolici:
Glicemia
Leptina
Adiponectina

Infiammatori:
IL6
IL1β

Stress:
DCFH-DA

Marker

Metabolici:
Recettore Insulina
P-AKT
AKT
GSK3α/β
p-GSK3β

Infiammatori:
IL6
IL1β
NFkB
TNFα
GFAP

Stress:
Generico: NO, ROS, p-ERK
Mitocondriale: SOD2, HSP60, VDAC

Neuroprotezione:
Nuclei apoptotici (TUNEL)

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LE PROSPETTIVE PER MALATI E FAMILIARI

Perché Pfizer abbandona la ricerca su Alzheimer, e quali sono gli sviluppi in corso

–di **Rosanna Magnano** | 08 gennaio 2018

Demenze incubo finanziario e sanitario

In Italia i casi di demenza sono oltre un milione e di questi 600mila sono di Alzheimer. Nel mondo ogni tre secondi c'è un nuovo caso e questo tipo di demenza è diventata la piaga del millennio. Una sfida che mette a rischio la sostenibilità dei sistemi sanitari nazionali e la stessa società. Basti pensare che la diffusione del morbo in Italia coinvolge direttamente o indirettamente 3 milioni di persone nell'assistenza dei loro cari. Con costi socio-sanitari complessivi stimati in circa 6 miliardi di euro. E l'urgenza di trovare la strada giusta è ancora più impellente nel Paese più vecchio d'Europa, che si prepara a diventare il più anziano del mondo. Le proiezioni al 2051 indicano infatti che in Italia ci saranno 280 anziani ogni 100 giovani.


SuperFood
Alimenti con spiccate proprietà salutari

Aphanizomenon flos-aquae (AFA) extract as a potential food ingredient for the prevention of metabolic and neurodegenerative disorders.

D. Nuzzo[1], M. Contardi[2], D. Kossyvaki[2], P. Picone[1], L. Cristaldi[1], G. Galizzi[1], G. Bosco[3], S. Scoglio[4], A. Athanassiou[2] and M. Di Carlo[1]

[1]*Istituto di Biomedicina ed Immunologia Molecolare (IBIM) "Alberto Monroy", CNR, Via Ugo La Malfa 153, 90146 Palermo, Italy*
[2]*Smart Materials, Istituto Italiano di Tecnologia (IIT), via Morego 30, 16163 Genova, Italy*
[3]*Le Farine dei Nostri Sacchi s.r.l. via Ugo La Malfa 135, 90146 Palermo, Italy*
[4]*Nutritherapy Research Center, 61029 Urbino, Italy*

Abstract

Microalgae are generally considered an excellent source of vitamins, minerals and bioactive molecules, that make them suitable to be introduced in cosmetics, pharmaceuticals, and foods industries. *Aphanizomenon flos-aquae* (AFA), an edible microalga, contains numerous biomolecules potentially able to prevent some pathologies including age-related disorders. With the aim to include AFA extract as a functional ingredient in baked products, we investigated if its bioactive molecules are destroyed or inactivated after standard cooking temperature. AFA extract was exposed to heat stress (AFA-HS) and no significant decrease in pigments, polyphenols and carotenoids content was detected by spectroscopic analysis. Thermal stability of AFA-HS extract was demonstrated by thermogravimetric analysis (TGA) and no change in the morphology of the granules of the powder was noticed by SEM microscopic observation. By Folin-Ciocalteu, ORAC and ABTS assays, no change in the antioxidant activity and polyphenols contents was found after high temperature exposition. When added in cell culture, solubilized AFA-HS did not lose neither its scavenging ability against ROS generation nor its protective role against beta amyloid (Aβ-) injuries. Prebiotic and antioxidant activities of AFA extract that are not lost after thermal stress, were verified on *E.coli* bacteria. Finally, AFA-HS-cookies, containing the extract as one of their ingredients showed increased polyphenols. Here, we evaluate the possibility to use AFA to produce functional food and prevent metabolic and age-related diseases.

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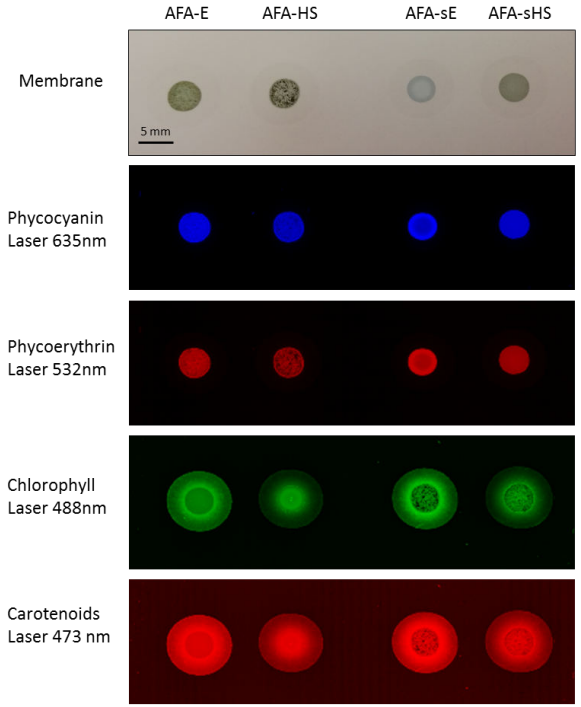
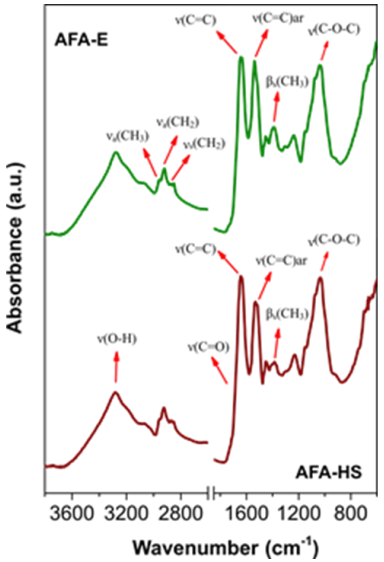
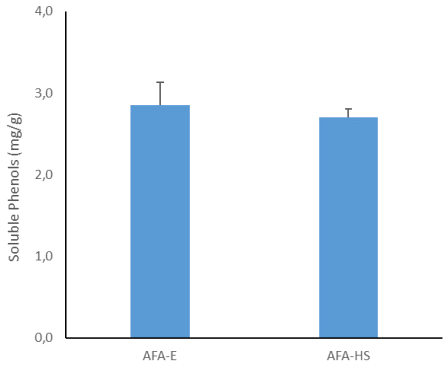
Resistenza allo stress termico



(a)



(b)



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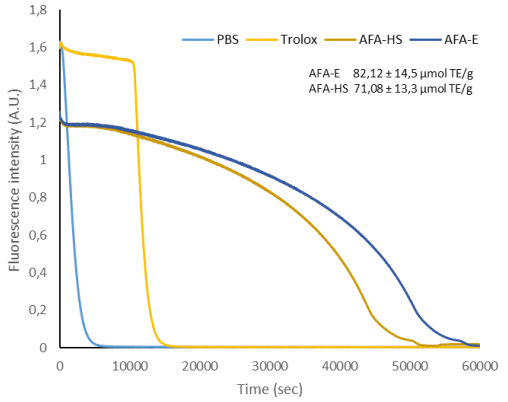

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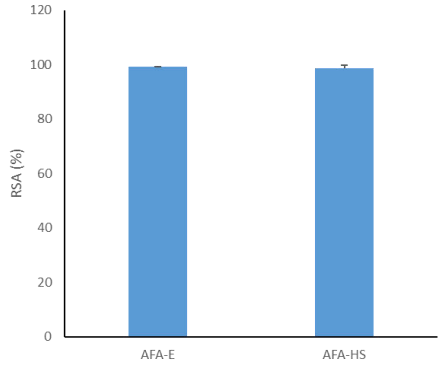

(e)

Il Klamin resiste allo stress termico.

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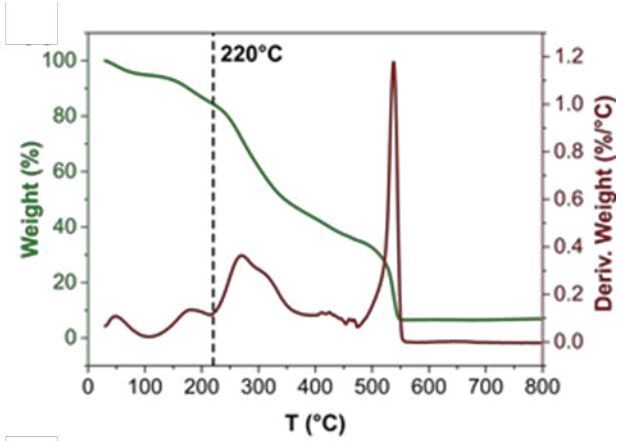
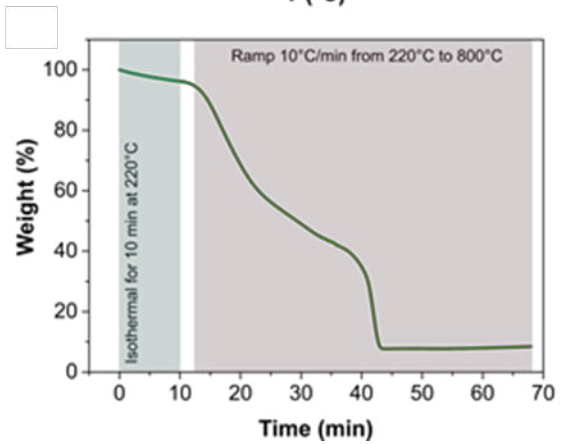
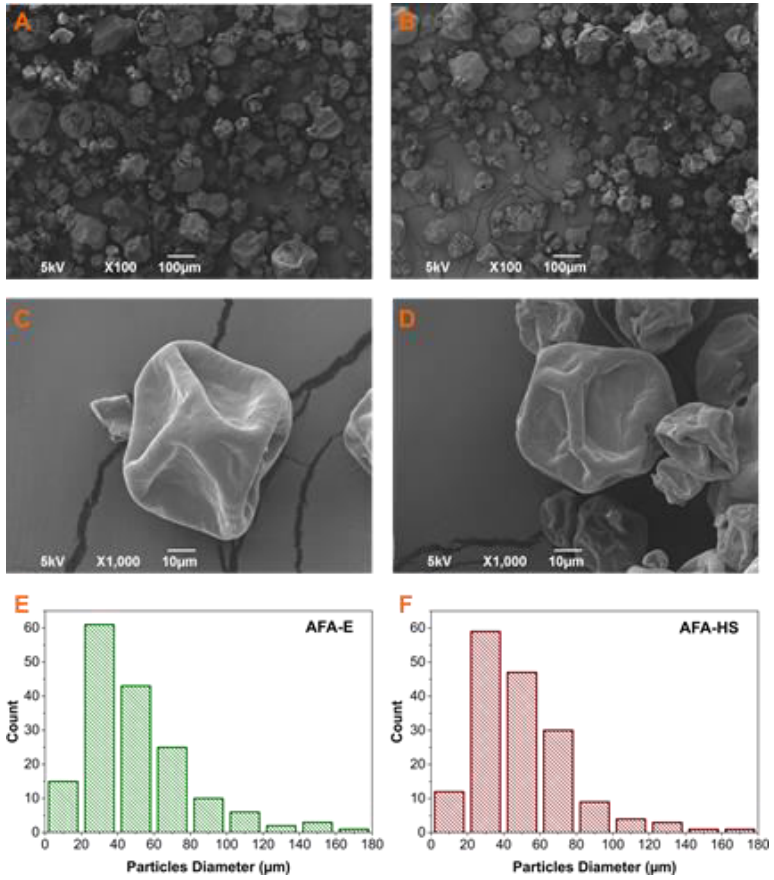
Le Farine dei Monti Sacchi

Resistenza allo stress termico







Il Klamin resite allo stress termico ***di breve durata***.

La morfologia dell'alga resite allo stress termico di 10 min.

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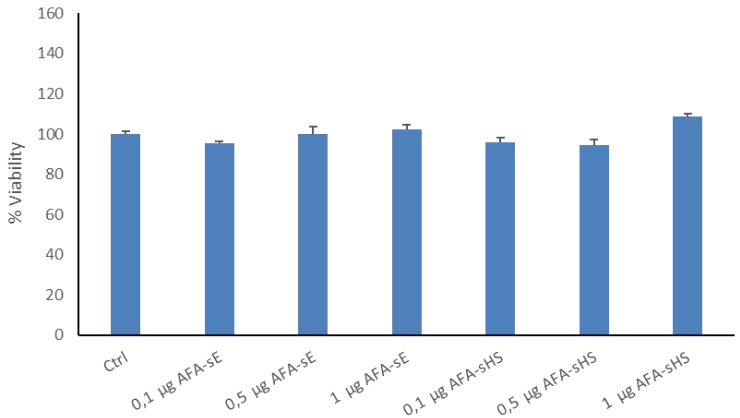
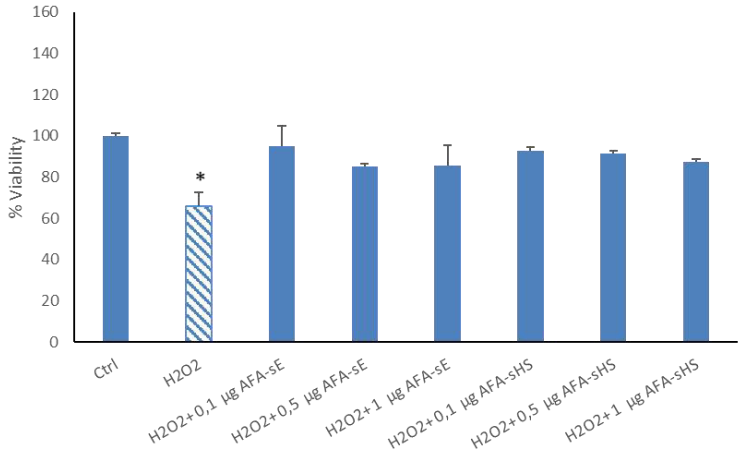
Le Farine di Sacchi

Effetto biologico dopo stress termico



(a)



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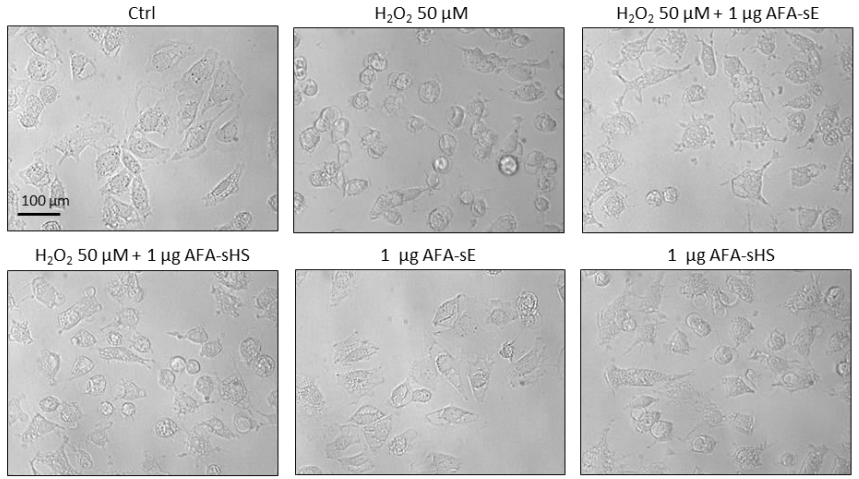

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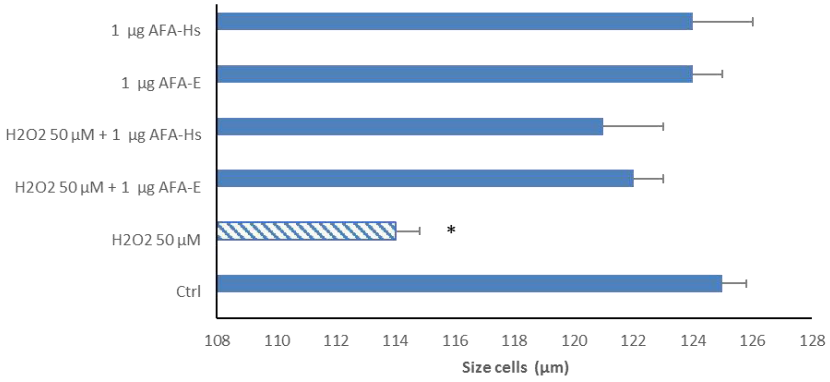

(d)

Lo stress termico non modifica le proprietà anti ossidanti.

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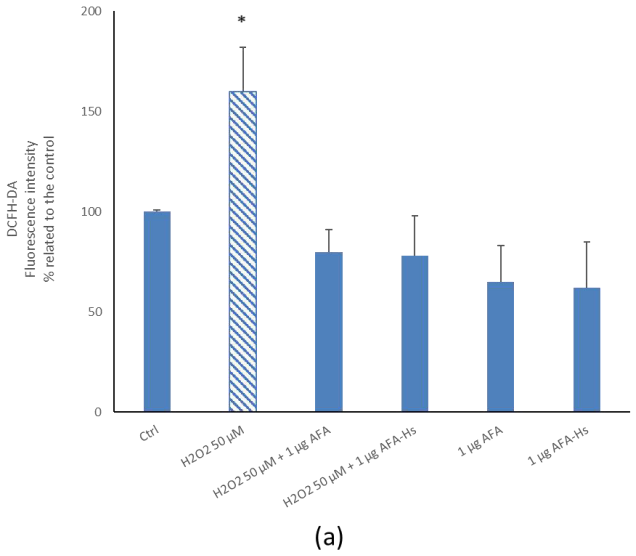
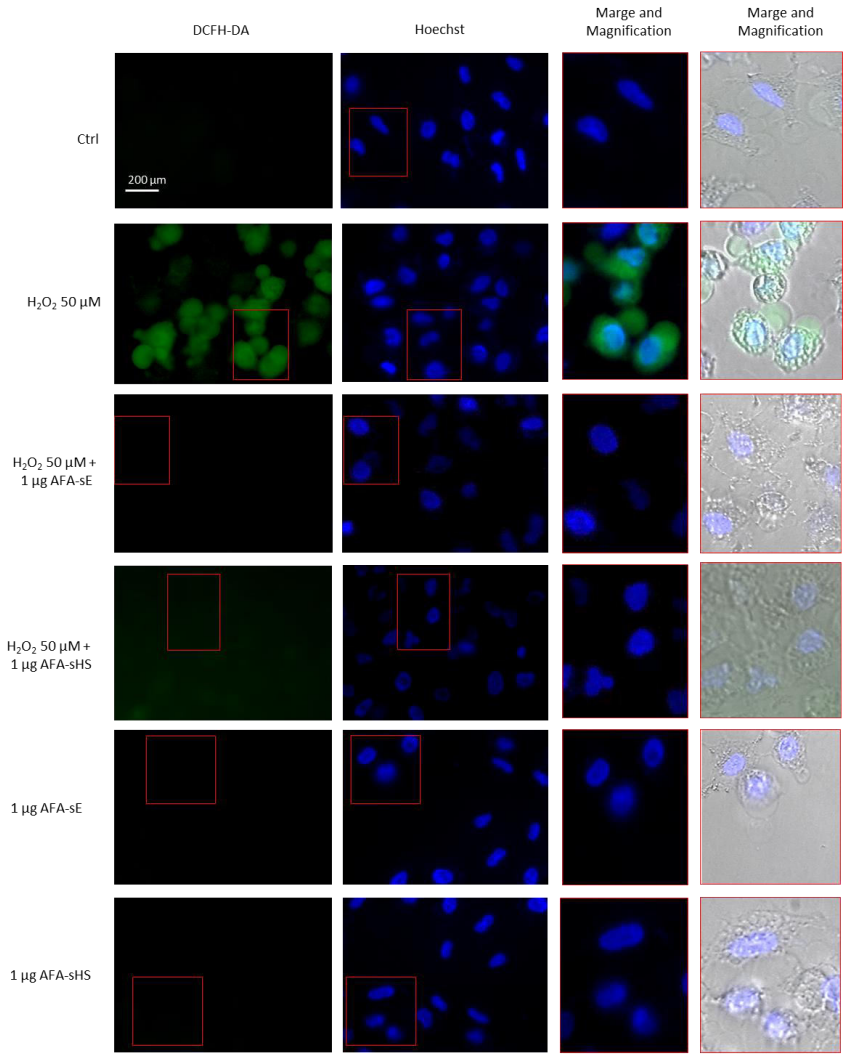
LE FARINE DEL MONTE Sacchi

Effetto biologico dopo stress termico



(a)



(b)

Lo stress termico non modifica le proprietà anti ossidanti.

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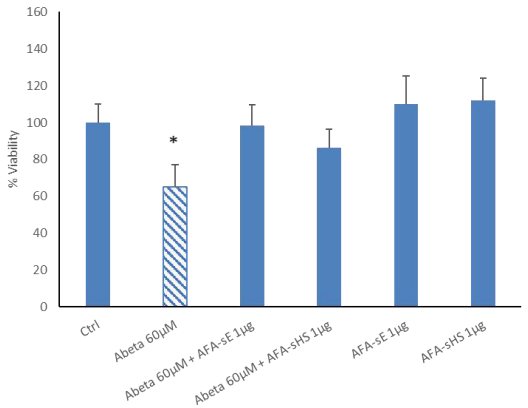
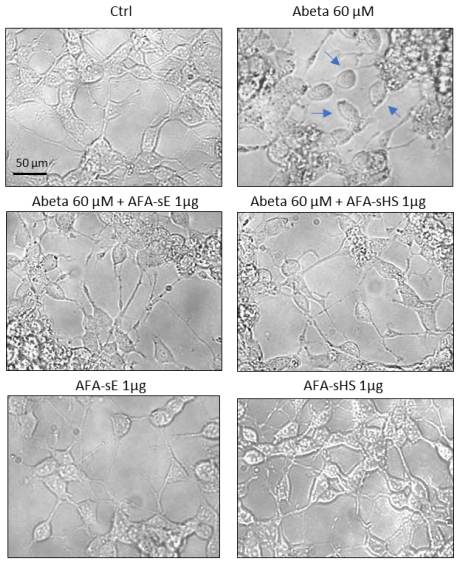
LE FARINE DEL MULINO Sacchi

Effetto biologico dopo stress termico



(a)



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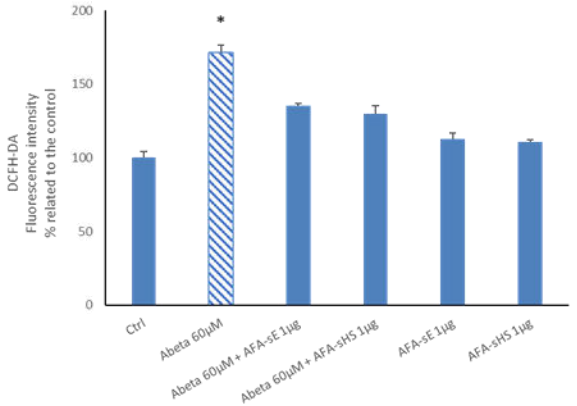

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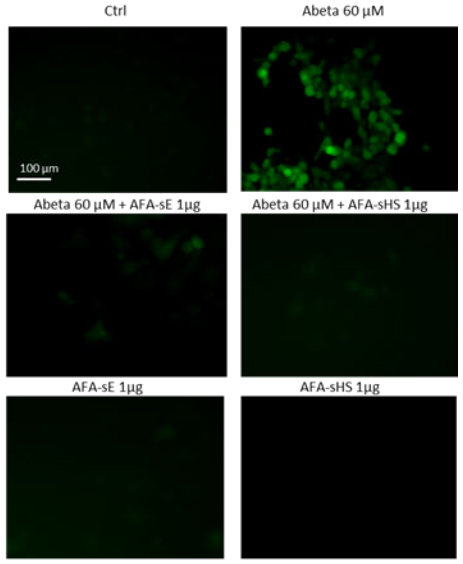

(d)

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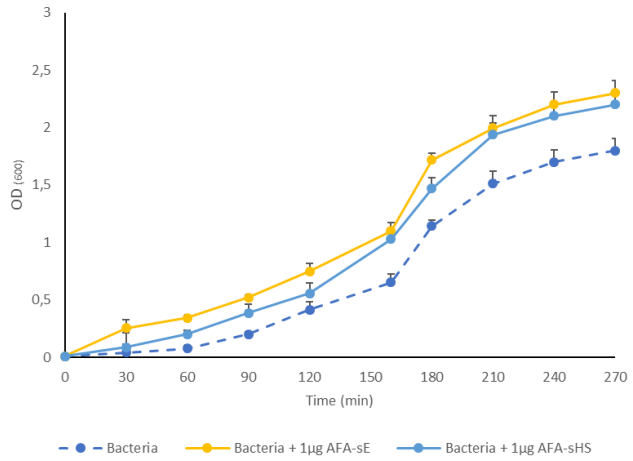
LE FARINE DEL MONDO Sacchi

Effetto biologico dopo stress termico



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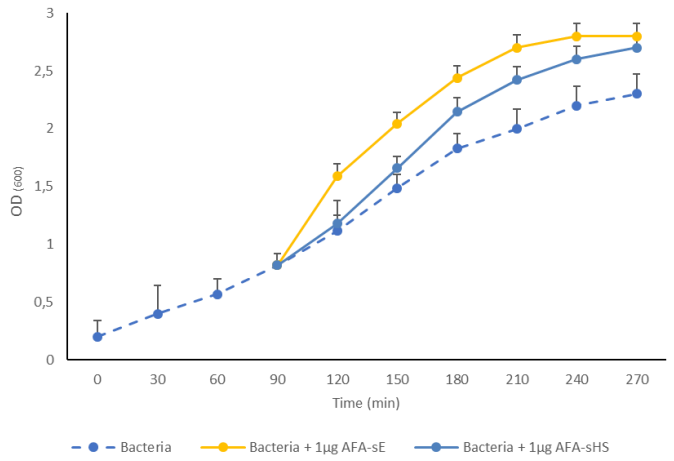

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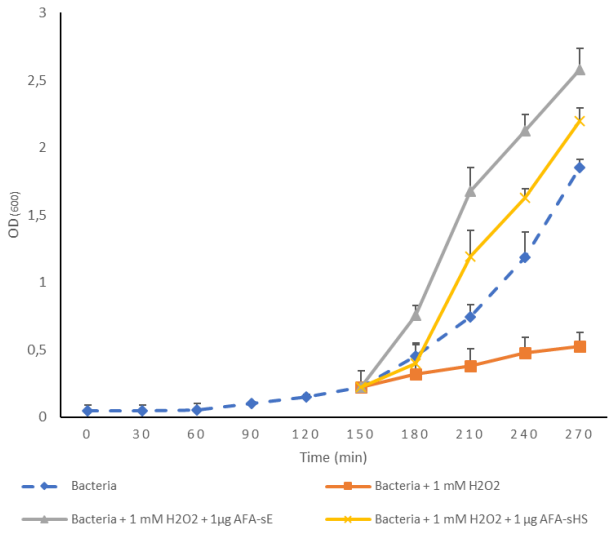

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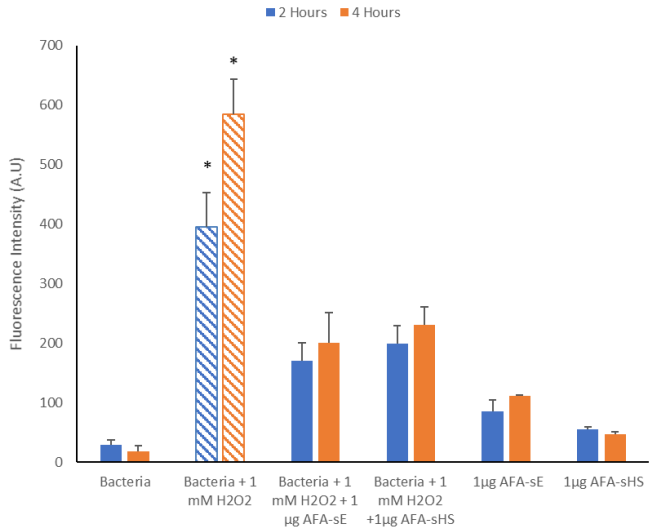

(d)

Gli estratti sembrano possedere proprietà prebiotiche che vengono mantenute anche dopo stress termico.

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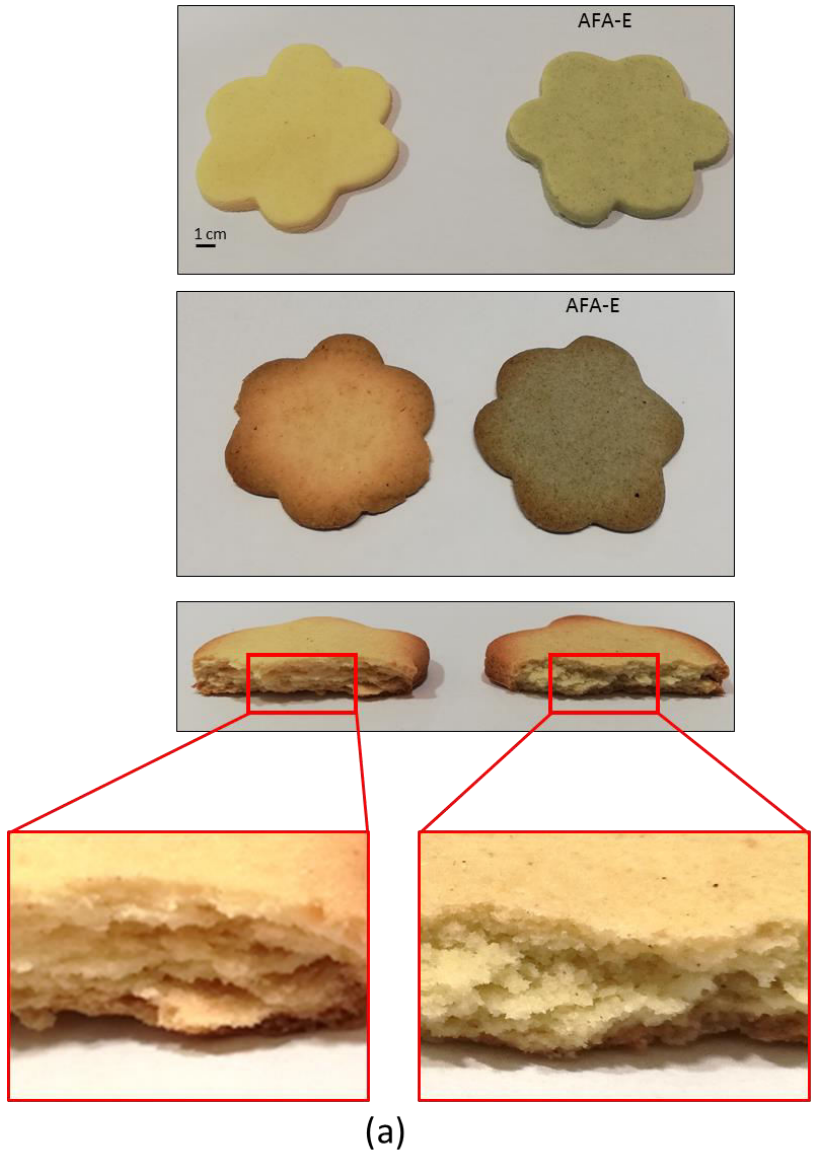
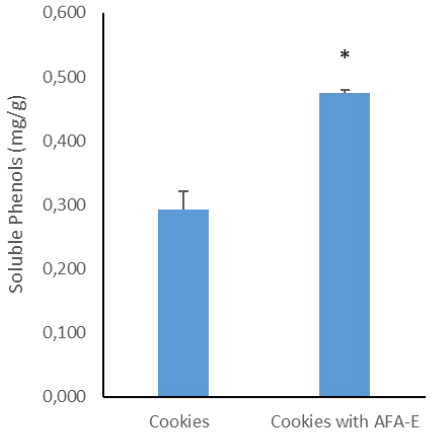
Le Farine del Mugnaio Sacchi

Functional Food



(a)



(b)

I biscotti preparati con il Klamin posseggono attività antiossidanti superiori al prodotto senza estratti.

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LE FARINE DEL MULINO Sacchi


Anche io mi curo con
le alghe…
Vado ogni sabato al
ristorante cinese

CNR – IBIM

Dr.ssa M. Di Carlo
Dr. P. Picone
Sig. L. Caruana

Agenzia delle Dogane - Palermo

Dr. G. Presti
Dr.ssa E. Gulotta

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Dr.ssa D. Kossyvaki

Le Farine dei nostri sacchi

Sig. Gloria Bosco

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Dr. Stefano Scoglio