



CYTED - CORNUCOPIA

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Characterization and functional evaluation for developing native IberianAmerican fruits-based

ingredients enriched in bioactive polyphenols: A Thematic Network

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On behalf of CORNUCOPIA: A Thematic Network Consortium

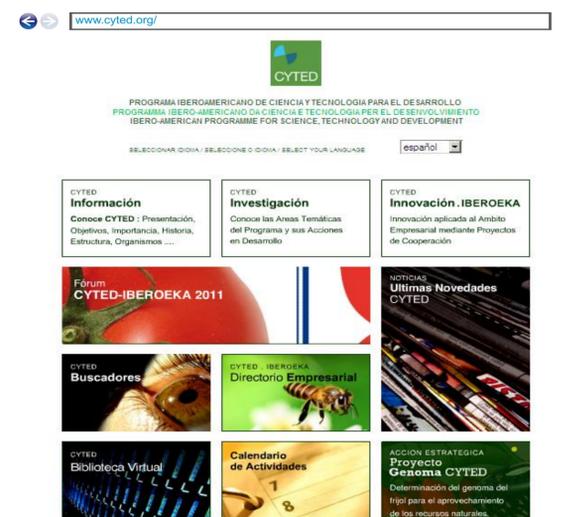
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Introduction

CORNUCOPIA aims to develop a collaborative scientific, technological, and training programme with multidisciplinary and transdisciplinary tasks joining agriculture, food, nutrition, and health areas from the laboratory and the scientific research to the industry and novel product development. CORNUCOPIA is formed by 26 partners, comprising scientific and technological groups from Universities, Public Institutes, Small and Medium Sized Enterprises and industries from 11 countries: Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Peru, Portugal, Spain, and Uruguay.

Methods and materials

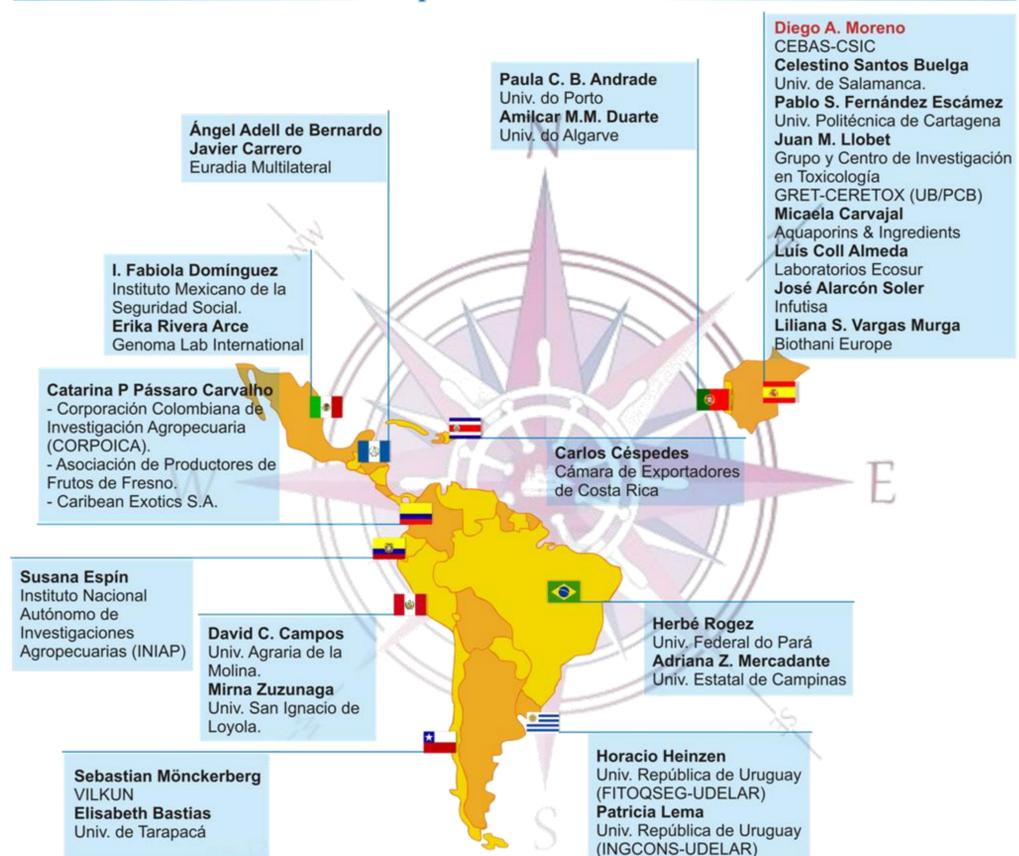
CORNUCOPIA network will carry-out a work plan with different activity packages: (i) Genotype and environmental effects on the bioactive compounds of IberianAmerican fruits, (ii) Bioavailability, safety, and metabolite profiling of the new ingredients and food matrices (enriched in flavonoids and non-flavonoids phenolics), (iii) Technological and innovative developments at the industry level for the novel foods, (iv) Functional evaluation of novel products using cellular, biochemical, and animal models, for physical and cognitive performance studies, and (v) Validation in human intervention studies.



IberianAmerican fruits rich in bioactive phytochemicals

Fruit (common name)	Species	Country	Phytochemicals
Açaí	<i>Euterpe oleracea</i>	Brazil / Colombia / Peru	Flavonoids, procyanidins, and benzoic acids
Cocoa	<i>Theobroma cacao</i>	Brazil / Colombia / Peru	Flavonoids and procyanidins
Calafate	<i>Berberis heterophylla</i>	Chile	Anthocyanins, procyanidins, and phenolic acids
Camu-camu	<i>Myrciaria dubia</i>	Brazil / Peru	Flavonoids, tannins and vitamin C
Cupuáçu (Copoazú)	<i>Theobroma grandiflorum</i>	Colombia / Peru	Flavonoids, tannins and vitamin C
Blackthorn	<i>Prunus spinosa</i>	Spain	Flavonoids and vitamin C
Feijoa	<i>Acca sellowiana</i> , <i>Feijoa sellowiana</i>	Mexico	Procyanidins and vitamin C
Prickly pear	<i>Opuntia spp.</i>	Mexico, Spain	Betalains and flavonoids
Guava	<i>Psidium spp.</i> <i>P. guajava</i>	Mexico	Flavonoids, carotenoids and vitamin C
Pomegranate	<i>Punica granatum</i>	Spain / Portugal / Chile	Ellagitannins and flavonoids
Maqui	<i>Aristotelia chilensis</i>	Chile	Anthocyanins, flavonoids and ellagic acids
Quince	<i>Cydonia oblonga</i>	Spain / Portugal / Uruguay	Flavonols and phenolic acids
Murta	<i>Ugni molinae</i>	Chile	Flavonoids and phenolic acids
Mortino	<i>Vaccinium meridionale</i>	Colombia	Flavonoids
Ovo/Ciruella	<i>Spondias purpurea</i>	Ecuador	Carotenoids and vitamins
Noni	<i>Morinda citrifolia</i>	Peru, Spain	Flavonoids and vitamin C
Tamarillo	<i>Solanum betaceum</i>	Colombia, Ecuador	Carotenoids, phenolic acids and vitamin C
Naranjilla	<i>Solanum quitoense</i>	Ecuador	Carotenoids, flavonoids, and phenolic acids
Papaya	<i>Carica papaya</i>	Latin America	Carotenoids, flavonoids and vitamin C
Uchuva/Physalis	<i>Physalis peruviana</i>	Chile/Colombia	Flavonoids and phenolic acids

Groups-Centers Network



Expected Results and Benefits

CORNUCOPIA will lead the novel food products for international markets, enriched in naturally healthy and bioactive polyphenols from fruits, with potential to improve and maintain the physical and cognitive performance. New food matrices and delivery systems for the bioactive compounds to improve bioavailability, functionality, and safety will facilitate the manufacture and future commercialization of high quality with nutritional and/or health claims. The advantages of CORNUCOPIA, involving consolidated and emerging groups, will be encouraged by the collaborative work, training activities, and research, development, and innovation tasks for the future commercialization of highly nutritive and beneficial food products (i.e. functional foods, beverages, nutraceuticals, etc.)

Acknowledgements

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