



**ANTIOXIDANT
FUNCTIONAL FOODS:
CELLULAR AND
MOLECULAR EVIDENCES
TO HUMAN
PERSPECTIVES**

**LES ALICAMENTS
FONTIONNELS
ANTIOXYDANTS:
DONNEES BIOCHIMIQUES
ET MOLECULAIRES ET
PERSPECTIVES HUMAINES**

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University of Mauritius



**ALIMENTS FONCTIONNELS ET SANTÉ :
ÉTAT DES LIEUX EN OCÉAN INDIEN**



Themes under the National Research Chair Program

(A)
CANCER
CHEMOPREVENTION



Cancer chemo-preventive actions of Natural products: an insight into their molecular mechanisms



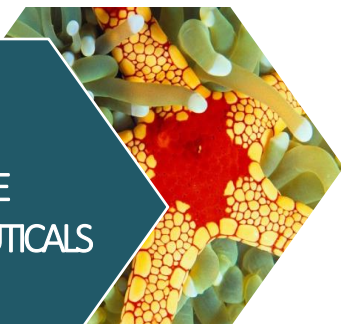
(B)
FUNCTIONAL FOODS
& NUTRACEUTICAL
RESEARCH



Oxidative stress & diabetes :
Physiological, molecular and
cellular effects of functional
foods/dietary factors



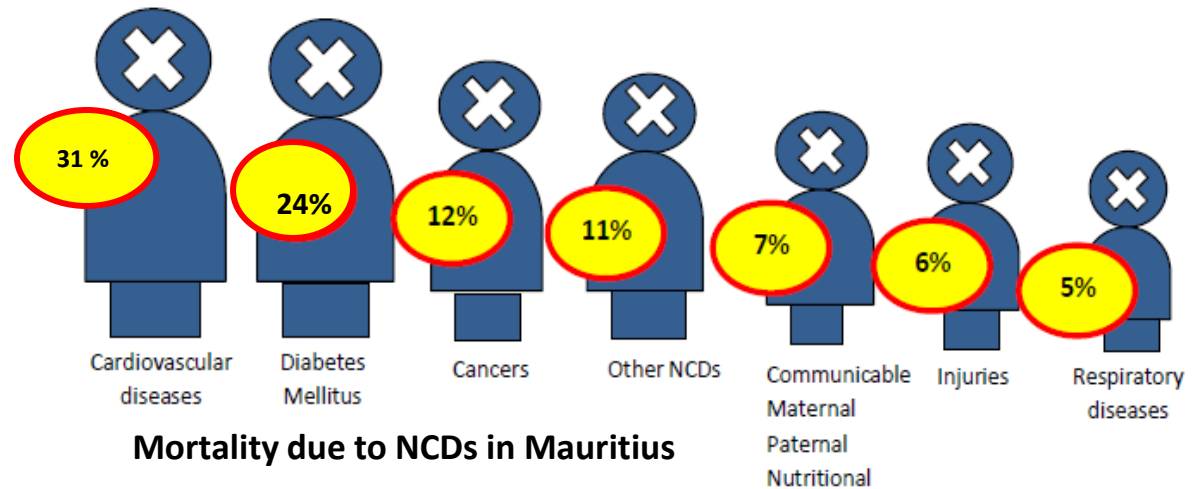
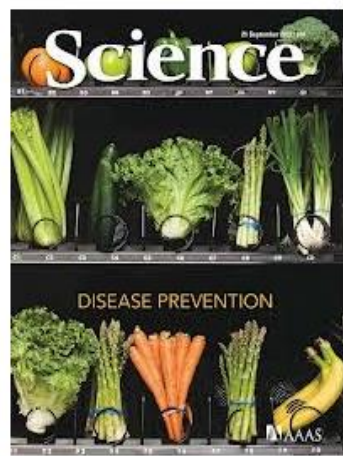
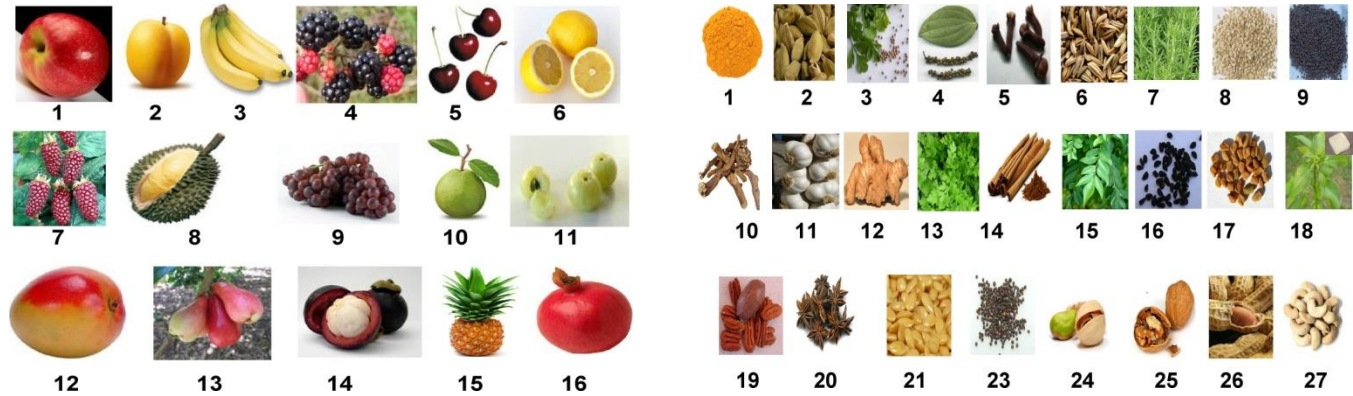
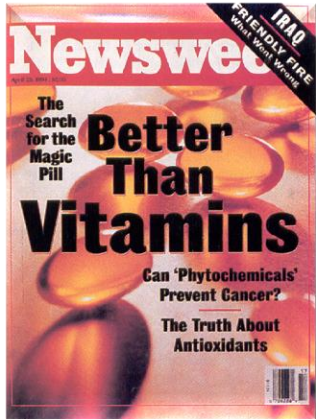
(C)
MARINE
PHARMACEUTICALS



Biomedical Evaluation of selected Mauritian marine macroalgae, sponges and soft corals in relation to their bioactive constituents



Functional foods: alternatives in the management of health & diseases?



Knowledge of bioactive constituents, their clinical effects and molecular action mechanisms are relevant to maximize health benefits



Antioxidant actions and phenolic and vitamin C contents of common Mauritian exotic fruits

Amitabye Luximon-Ramma,¹ Theeshan Bahorun^{1*} and Alan Crozier²

Hindawi Publishing Corporation
International Journal of Food Science
Volume 2013, Article ID 602312, 12 pages
<http://dx.doi.org/10.1155/2013/602312>



Research Article

Bioactivity of Nonedible Parts of *Punica granatum* L.: A Potential Source of Functional Ingredients

Nawraj Rummun,¹ Jhoti Somanah,² Srishti Ramsaha,³
Theeshan Bahorun,⁴ and Vidushi S. Neergheen-Bhujun³



Total phenol, flavonoid, proanthocyanidin and vitamin C levels and antioxidant activities of Mauritian vegetables

Theeshan Bahorun,^{1*} Amitabye Luximon-Ramma,¹ Alan Crozier² and Okezie I Aruoma^{3*}



Contents lists available at ScienceDirect

Toxicology

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



CITRUS



Bioactive phenolics and antioxidant propensity of flavedo extracts of Mauritian citrus fruits: Potential prophylactic ingredients for functional foods application

Deena Ramful^a, Theeshan Bahorun^{b,*}, Emmanuel Bourdon^c, Evelyne Tarnus^c, Okezie I. Aruoma^d

Food Research International 44 (2011) 2088–2099



Contents lists available at ScienceDirect

Food Research International

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



Polyphenol composition, vitamin C content and antioxidant capacity of Mauritian citrus fruit pulps

Deena Ramful^a, Evelyne Tarnus^b, Okezie I. Aruoma^c, Emmanuel Bourdon^b, Theeshan Bahorun^{d,*}

Preventive Medicine 54 (2012) S12–S16



Contents lists available at SciVerse ScienceDirect

Preventive Medicine

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



Commentary

Functional benefits of citrus fruits in the management of diabetes

Okezie I. Aruoma^{a,*}, Bernie Landes^b, Deena Ramful-Baboolall^c, Emmanuel Bourdon^d, Vidushi Neergheen-Bhujun^e, Karl-Heinz Wagner^f, Theeshan Bahorun^g

JOURNAL OF
**AGRICULTURAL AND
FOOD CHEMISTRY**
ARTICLE

J. Agric. Food Chem. **2010**, *58*, 11119–11129 **11119**
DOI:10.1021/jf102762s

Citrus Fruit Extracts Reduce Advanced Glycation End Products (AGEs)- and H₂O₂-Induced Oxidative Stress in Human Adipocytes

DEENA RAMFUL,[†] EVELYNE TARNUS,^{‡,§} PHILIPPE RONDEAU,[‡]
CHRISTINE ROBERT DA SILVA,[‡] THEESHAN BAHORUN,^{*,||} AND EMMANUEL BOURDON^{*,‡}



MAURITIAN TEAS



Available online at www.sciencedirect.com

SCIENCE @ DIRECT®

Food Research International 38 (2005) 357–367

FOOD
RESEARCH
INTERNATIONAL

www.elsevier.com/locate/foodres

Characterization of the antioxidant functions of flavonoids and proanthocyanidins in Mauritian black teas

Amitabye Luximon-Ramma^a, Theeshan Bahorun^{a,*}, Alan Crozier^b, Virginia Zbarsky^c,
Krishna P. Datla^c, David T. Dexter^c, Okezie I. Aruoma^{d,e,*}



BioFactors 27 (2006) 79–91
IOS Press

Assessment of the polyphenolic composition of the organic extracts of Mauritian black teas: A potential contributor to their antioxidant functions

Amitabye Luximon-Ramma^a, Vidushi S. Neergheen^a, Theeshan Bahorun^{a,*}, Alan Crozier^b,
Virginia Zbarsky^c, Krishna P. Datla^c, David T. Dexter^c and Okezie I. Aruoma^{d,*}





Contents lists available at [ScienceDirect](#)

Toxicology

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



Black tea reduces uric acid and C-reactive protein levels in humans susceptible to cardiovascular diseases

Theeshan Bahorun^{a,*}, Amitabye Luximon-Ramma^a, Teeluck K. Gunness^b, Dharmendra Sookar^b, Satar Bhoyroo^b, Rabindranath Jugessur^b, Deshmukh Reebye^b, Kreshna Googoolye^a, Alan Crozier^c, Okezie I. Aruoma^{d,**}

Preventive Medicine 54 (2012) S98–S102



Contents lists available at [SciVerse ScienceDirect](#)

Preventive Medicine

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



The effect of black tea on risk factors of cardiovascular disease in a normal population

Theeshan Bahorun^{a,*}, Amitabye Luximon-Ramma^a, Vidushi S. Neergheen-Bhujun^b, Teeluck Kumar Gunness^c, Kreshna Googoolye^a, Cyril Auger^d, Alan Crozier^e, Okezie I. Aruoma^{e,**}

Clinical Study

Effectiveness of Green Tea in a Randomized Human Cohort: Relevance to Diabetes and Its Complications

**Naushad Ali Toolsee,¹ Okezie I. Aruoma,² Teeluck K. Gunness,³ Sudhir Kowlessur,⁴
Venkatesh Dambala,⁵ Fatima Murad,⁶ Kreshna Googoolye,⁷ Diana Daus,⁸
Joseph Indelicato,⁸ Philippe Rondeau,⁹ Emmanuel Bourdon,⁹ and Theeshan Bahorun¹**



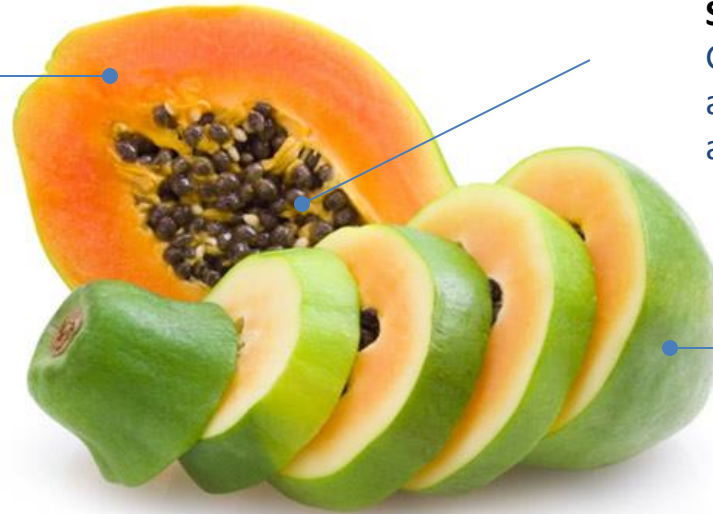
Papaya: the miracle fruit?

Pulp

Minerals, Vitamins C, lycopene, β -carotene, β -cryptoxanthin
Caffeic acid, gallic acid,
protocatechuic acids, caffeoyl
hexose deoxyhexoside

Seed

Glucosinolates, oleic acid, palmitic
acid, β -cryptoxanthin, tannins,
alkaloids, phenols



Peel

Ferulic acid, caffeic acid, rutin,
quercetin, coumaric acid,
kaempferol, isohamnetin

Fermented Papaya Preparation (FPP)



Fermentation of ripe papaya
pulp gives rise to novel
oligosaccharides and increased
amino acid levels that exert
antioxidant properties

- The polyphenolic profile of papaya fruit depends greatly on several factors
e.g. *Stage of maturity, temperature, sunlight exposure, attack by insects/infections & quality of soil*
Polyphenols work in synergy to contribute to the overall antioxidant potential of papaya
- The exact profile of FPP is the center of on-going investigations



Contents lists available at SciVerse ScienceDirect

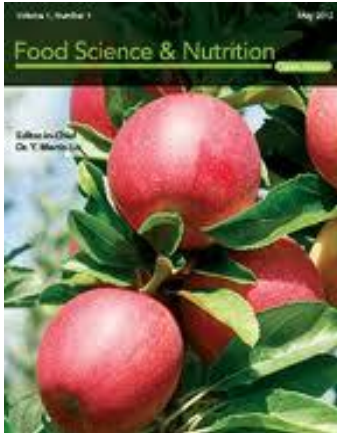
Preventive Medicine

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

Effects of a short term supplementation of a fermented papaya preparation on biomarkers of diabetes mellitus in a randomized Mauritian population

Jhoti Somanah ^a, Okezie I. Aruoma ^{b,*}, Teeluck K. Gunness ^c, Sudhir Kowelssur ^d, Venkatesh Dambala ^e, Fatima Murad ^f, Kreshna Googoolye ^g, Diana Daus ^h, Joseph Indelicato ^h, Emmanuel Bourdon ⁱ, Theeshan Bahorun ^{a,*}





ORIGINAL RESEARCH

The inhibitory effect of a fermented papaya preparation on growth, hydrophobicity, and acid production of *Streptococcus mutans*, *Streptococcus mitis*, and *Lactobacillus acidophilus*: its implications in oral health improvement of diabetics

Received: 19 March 2013; Revised: 8 July 2013; Accepted: 14 July 2013

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doi: 10.1002/fsn3.55



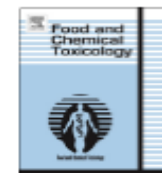


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Food and Chemical Toxicology

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



Relationship between fermented papaya preparation supplementation, erythrocyte integrity and antioxidant status in pre-diabetics [☆]



Jhоти Somanah ^a, Emmanuel Bourdon ^{b,*}, Philippe Rondeau ^b, Theeshan Bahorun ^{a,*}, Okezie I. Aruoma ^{c,*}

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^c School of Pharmacy, American University of Health Sciences, Signal Hill, CA 90755, USA

Mutation Research 768 (2014) 60–68



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Contents lists available at [ScienceDirect](#)

Mutation Research/Fundamental and Molecular Mechanisms of Mutagenesis

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

Community address: www.elsevier.com/locate/mutres



Review

Diabetes as a risk factor to cancer: Functional role of fermented papaya preparation as phytonutraceutical adjunct in the treatment of diabetes and cancer



Okezie I. Aruoma ^{a,*}, Jhоти Somanah ^b, Emmanuel Bourdon ^c,
Philippe Rondeau ^c, Theeshan Bahorun ^{b,**}

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

Life Sciences

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



ELSEVIER



Fermented papaya preparation modulates the progression of *N*-methyl-*N*-nitrosourea induced hepatocellular carcinoma in Balb/c mice



Jhoti Somanah ^a, Srishti Ramsaha ^b, Shalini Verma ^c, Ashok Kumar ^d, Poornima Sharma ^e, Ranjan Kumar Singh ^e, Okezie I. Aruoma ^f, Emmanuel Bourdon ^g, Theeshan Bahorun ^{a,*}





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