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Macaúba: Uso na alimentação humana e qualidades nutracêuticas



Programa de Pós-Graduação em Saúde
e Desenvolvimento na Região Centro-Oeste

NUTRIÇÃO

- **Manutenção da saúde e prevenção de doenças;**
- **Além dos nutrientes, existem outros componentes nos alimentos que podem exercer efeitos benéficos ao organismo.**



ALIMENTOS FUNCIONAIS E A OBESIDADE



ALIMENTOS COM ALEGAÇÃO FUNCIONAL E NUTRACÊUTICO

- *As alegações de propriedade funcional utilizadas nos chamados “alimentos funcionais” estão relacionadas ao papel metabólico ou fisiológico que um nutriente (ex. fibras) ou não nutriente tem no crescimento, desenvolvimento, manutenção e outras funções do organismo.*
- *Alimentos nutraceuticos são alimentos ou parte de alimentos que proporcionam benefícios medicamentosos/ clínicos na saúde, na prevenção e/ou tratamento de uma doença.*

ATUAÇÃO DAS FIBRAS MEDIANDO A OBESIDADE E A MICROBIOTA INTESTINAL

REVIEWS

Functional foods and dietary supplements for the management of dyslipidaemia

Paola M. Hunter and Robert A. Hegele

Abstract | Dyslipidaemia is characterized by increased blood levels of total or LDL cholesterol and triglycerides, or decreased HDL cholesterol levels, and is a risk factor for cardiovascular disease. Dyslipidaemia has a high worldwide prevalence, and many patients are turning to alternatives to pharmacotherapy to manage their lipid levels. Lifestyle modification should be emphasized in all patients to reduce cardiovascular risk and can be initiated before pharmacotherapy in primary prevention of cardiovascular disease. Many functional foods and natural health products have been investigated for potential lipid-lowering properties. Those with good evidence for a biochemical effect on plasma lipid levels include soy protein, green tea, plant sterols, probiotic yogurt, marine-derived omega-3 fatty acids and red yeast rice. Other products such as seaweed, berberine, hawthorn and garlic might confer some limited benefit in certain patient groups. Although none of these products can reduce lipid levels to the same extent as statins, most are safe to use in addition to other lifestyle modifications and pharmacotherapy. Natural health products marketed at individuals with dyslipidaemia, such as policosanol, guggulsterone and resveratrol, have minimal definitive evidence of a biochemical benefit. Additional research is required in this field, which should include large, high-quality randomized controlled trials with long follow-up periods to investigate associations with cardiovascular end points.



FIBRAS DISPONÍVEIS NO MERCADO



USO DAS FIBRAS EM INDIVÍDUOS SAUDÁVEIS E HOSPITALIZADOS



BOCAIUVA/MACAÚBA

Bocaiuva:

Fibras: 22 g

Recomendação da
OMS: 20g/dia

**Hiane et al.
(2006)
reportaram
15 g de fibras
na polpa e
18 g na
castanha**



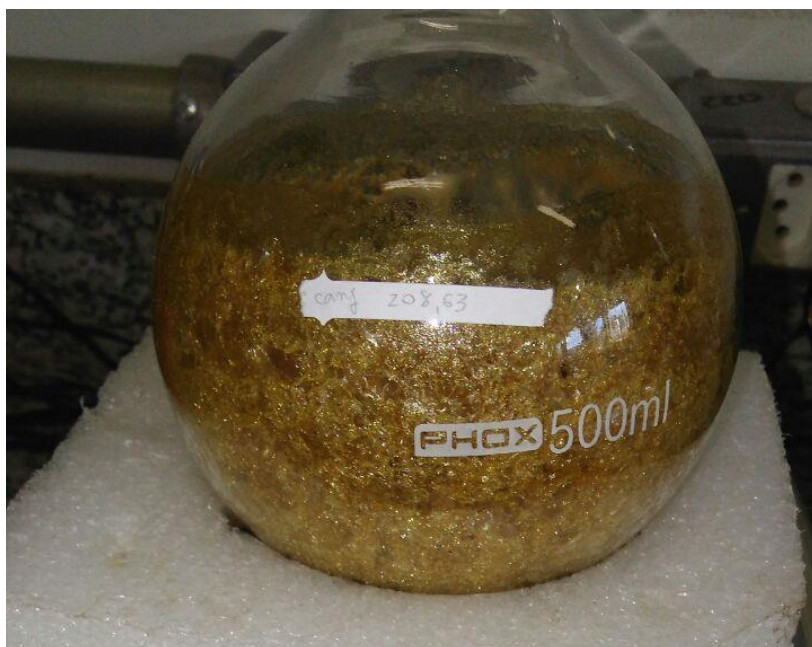
Tabela 1. Composição centesimal de polpa e amêndoa liofilizadas de bocaiuva

Componentes	Polpa de bocaiuva (g/100 g em base úmida)	Amêndoa de bocaiuva (g/100 g em base úmida)
Umidade	1,1 ± 0,03	2,63 ± 0,03
Lipídeos	23,51 ± 0,02	51,97 ± 0,02
Resíduo mineral fixo	3,34 ± 0,01	1,91 ± 0,04
Proteínas	4,25 ± 0,03	17,19 ± 0,01
Carboidratos totais	48,67 ± 0,04	6,87 ± 0,02
Fibras	22,28	24,9
Valor calórico total (kcal/100 g)	423,27	563,97

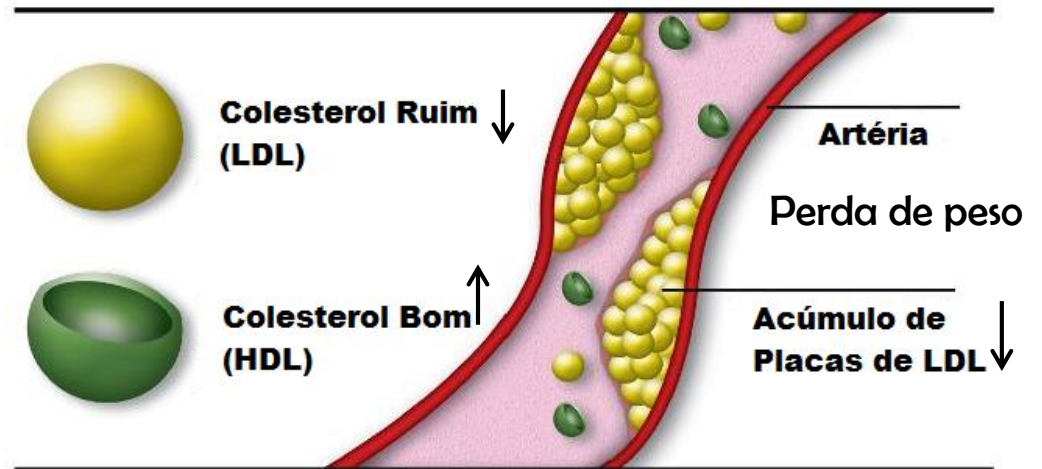
ENSAIOS EXPERIMENTAIS

Teste de toxicidade aguda

(OECD, 2008)



ENSAIOS EXPERIMENTAIS



Animal models of obesity in rodents. An integrative review¹

Melina Ribeiro Fernandes^I, Nayara Vieira de Lima^I, Karoline Silva Rezende^I, Isabela Caroline Marques Santos^I, Iandara Schettert Silva^{II}, Rita de Cássia Avellaneda Guimarães^{III}

DOI: <http://dx.doi.org/10.1590/S0102-865020160120000010>

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ABSTRACT

PURPOSE: To perform an integrative review of the main animal disease models in rodents used for obesity.

METHODS: Research was conducted in the CAPES Portal database using the following keywords “obesity animal models, diet and rodents”, published between the years 2010 to 2016. We found 108 articles, of which 19 were selected and analyzed in full for this study.

RESULTS: Larger part of publications occurred in the last 6 years, the rats (n = 10) were used in the same proportion mice (n = 10). The choice of male animals (n = 18) and age greater than 21 days (n = 17) showed a major highlight. The greater than 5 week follow-up period (n = 18) was the most applied. A High Fat Diet was the most used in studies (n = 18).

CONCLUSIONS: Male rodents continue to be considered the species most used in experimental studies to induce obesity, also was found variations of age to the beginning of the experiment. For the most part are follow-up time studies along with the use of High Fat Diet.

Key words: Obesity. Animal Experimentation. Diet. Rodentia.

Phytosterols that are naturally present in commercial corn oil significantly reduce cholesterol absorption in humans¹⁻³

Richard E Ostlund Jr, Susan B Racette, Alfred Okeke, and William F Stenson

ABSTRACT

Background: Although supplementing the diet with large quantities of phytosterols reduces cholesterol absorption and LDL-cholesterol concentrations, very little is known about the smaller amounts of phytosterols present naturally in food. Vegetable oils are the richest dietary source of phytosterols; corn oil contains 0.77% phytosterols by weight.

Objective: We tested the hypothesis that removing phytosterols from corn oil would increase cholesterol absorption when measured in single-meal tests containing corn oil as a source of fat.

Design: Free and esterified phytosterols were removed from corn oil on a kilogram scale by a new technique of competitive saturation adsorption to silica. Healthy subjects with a mean (\pm SEM) serum cholesterol concentration of 5.10 ± 0.18 mmol/L received an otherwise sterol-free test breakfast on 2 occasions 2 wk apart that contained 35 mg hexadeuterated cholesterol and 30–35 g of a corn oil preparation. The plasma enrichment of tracer was measured by negative ion mass spectrometry.

Results: Cholesterol absorption was $38.0 \pm 10.2\%$ higher after consumption of the sterol-free corn oil than after consumption of commercial corn oil with an identical fatty acid content ($P = 0.005$; $n = 10$). When corn oil phytosterols were added back to sterol-free corn oil at a concentration of 150 mg/test meal, cholesterol absorption was reduced by $12.1 \pm 3.7\%$ ($P = 0.03$; $n = 5$) and by $27.9 \pm 9.1\%$ ($P = 0.01$; $n = 10$) after inclusion of 300 mg phytosterols.

Conclusions: Phytosterols comprising $< 1\%$ of commercial corn oil substantially reduced cholesterol absorption and may account for part of the cholesterol-lowering activity of corn oil previously attributed solely to unsaturated fatty acids. *Am J Clin Nutr* 2002;75:1000–4.

KEY WORDS Phytosterols, oils, diet, cholesterol, mass spectrometry, deuterium

from fat triacylglycerol by intestinal hydrolysis, are solely responsible for the cholesterol-lowering effects observed. However, formal evidence from human clinical trials supporting this position is quite limited and inconclusive (6, 7). Thus, the possibility exists that trace components of food fats may be involved in the regulation of serum cholesterol concentration.

Phytosterols constitute the largest nontriacylglycerol component of refined vegetable fats (5). They act within the intestine to reduce cholesterol absorption and lower LDL-cholesterol concentration without being absorbed themselves (8). Studies with properly formulated phytosterols showed that ≤ 300 mg phytosterols in a single dose, or 830 mg phytosterols/d, may have important effects on cholesterol metabolism (9, 10). These doses suggested to us that natural dietary phytosterols might also be physiologically active when compared with estimates of 100–500 mg phytosterols/d (or per 100 g fat) in the general diet (11, 12). We chose corn oil as a source of natural phytosterols because vegetable oils have much higher concentrations of phytosterols than do nonfatty vegetable foods and because corn oil is one of the richest sources of phytosterols among commonly used commercial oils (12). Our hypothesis was that cholesterol absorption during the consumption of test meals that contained corn oil would increase after corn oil phytosterols were removed.

To allow for the most direct comparison between purified corn oil triacylglycerol and commercial corn oil, we developed a method to remove both free and esterified phytosterols from bulk corn oil by using the principle of competition for adsorption to silica. We then compared cholesterol absorption in subjects on 2 occasions after otherwise sterol-free



ALGUNS PRODUTOS DE SUCESSO NO MERCADO ...



Gostinho do Cerrado

Biscoito de bocaiuva (Acrocomia totai) com chocolate e castanha de baru (Dipteryx alata Vog.)



+



Gostinho do Cerrado

***Biscoito de bocaiuva com chocolate e
castanha de baru***

=



BARRA DE CEREAL DE BOCAIUVA (*Acrocomia totai*)



BARRA DE CEREAL COM POLPA E CASTANHA DE BOCAIUVA



Informação Nutricional
Porção de 15g (1 unidade)

Quantidade por porção		% VD (*)
Valor calorico	48,3 Kcal = 203 KJ	2,5%
carboidratos	8,66 g	3%
proteínas	0,6 g	1%
Gorduras totais	1,2 g	2%
Gorduras saturadas	ND	ND
Gorduras <i>trans</i>	ND	ND
Fibra alimentar	9,0 g	4%
Sódio	34,9 mg	1,5%
Cálcio	24,25 mg	2,5%
Ferro	0,88 mg	**
Fósforo	9,14 mg	**
Potassio	67 mg	**
Magnésio	0,7 mg	**
Selênio	0,1 mg	**
Manganês	0,1 mg	**
Vitamina A	100,5 mg	**
Vitamina C	1,4 mg	**
Vitamina E (tocoferois)	0,4 mg	**
Acido fólico	0,9 mg	**
Vitamina K	9,7 mg	**



Preparation of a cereal bar containing bocaiuva: physical, nutritional, microbiological and sensory evaluation

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ABSTRACT. Regional fruit have been increasingly used in recent years in the preparation of foodstuffs because besides promoting the biome preservation, it is obtained differentiated and value-added products. This study aimed to prepare cereal bars containing pulp and kernel of bocaiuva and determine the nutritional quality, assess the acceptability, and microbiological quality. Two formulations of cereal bar were prepared with pulp dehydrated by osmoconvection and kernel of bocaiuva. The formulations were analyzed as for the texture, color analysis, proximate composition, fatty acids profile, mineral, microbiology and sensory evaluation. Cereal bars presented on average, in g 100 g⁻¹, 4.83 moisture, 8.01 protein, 12.93 lipids, 1.30 ash, 53.75 total carbohydrate, 19.78 fiber and 363.41 kcal 100 g⁻¹ total caloric value. Bars represented a source of calcium and iron and had a high content of oleic acid, average of 20 g 100 g⁻¹ total lipids. In the microbiological evaluation, cereal bars have met the standards set by the legislation, being suitable for consumption. As for the attributes evaluated in the sensory analysis, all showed mean values above 6, considered acceptable for consumption. The use of bocaiuva may contribute to highlight differentiated taste and appearance, emphasizing the use of native fruits in the preparation of new products.

Keywords: cereal bar, *Acrocomia aculeata*, acceptance, nutritional quality.

NUTRI-JÚVA

“MAIS UMA DELÍCIA DO CERRADO!”





PRÓXIMOS PASSOS

- ✓ Avaliar o impacto das fibras na microbiota intestinal;
- ✓ Utilizar a fibra de bocaiuva em ensaios clínicos ambulatoriais e em pacientes hospitalizados;
- ✓ Usar o óleo e os fitoesteróis de bocaiuva em ensaios clínicos ambulatoriais e em pacientes hospitalizados*;

PRÓXIMOS PASSOS

- ✓ Encapsular as fibras da polpa e da castanha de bocaiuva;
- ✓ Isolar e encapsular os fitoesteóis;
- ✓ Difundir amplamente o consumo da polpa e castanha de bocaiuva na alimentação.





PROPONENTES



PLANO DE INOVAÇÃO DA CADEIA DA BOCAIUVA DO ESTADO DO MATO GROSSO DO SUL

Campo Grande - MS

2017



MUITO OBRIGADA!

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