

The nopalitos of *Opuntia ficus indica* are hypolipemiant, corrects endothelial dysfunction and mitigates the radical attack in rats exposed prematurely to cafeteria diet



Hadjera Chekkal, Nour El Imane Harrat, Fouad Affane, Fatima Bensalah, Myriem Lamri-Senhadji*

Laboratoire de Nutrition Clinique et Métabolique (LNCM), Faculté des Sciences de la Nature et de la Vie, Université Oran 1 Ahmed Ben Bella, Oran, Algérie

* Corresponding author.

E-mail address: mylamri@hotmail.fr (M. Lamri-Senhadji)

Background Diets based on industrially processed foods, rich in calorie, fat and sugar (cafeteria type food), are suitable for modeling, in animals, metabolic abnormalities of human obesity. The literature has long been interested in the therapeutic effects of *Opuntia ficus indica* (OFI) in particular, its fruit and seed. However, few experiment studies are carried out on cardioprotective effects of its by-coproducts (cladodes or nopalitos).

Purpose The effects of OFI nopalitos were studied on arterial pressure, dyslipidaemia, oxidative stress and endothelial dysfunction in rats exposed prematurely to cafeteria diet (CD).

Methods Sixteen young Wistar male rats were divided into two homogeneous groups fed a CD containing 50% of hyperlipidic diet and 50% of junk food mix, supplemented or not with 50 g of fresh OFI nopalitos, for 30 days.

Results Arterial pressure was not sensitive to OFI nopalitos supplementation. Nevertheless, OFI nopalitos decrease significantly serum total cholesterol and triacylglycerols contents, attenuate in serum, blood red cells and aorta, lipid peroxidation by decreasing hydroperoxides and thiobarbituric acid reactive substances levels, and protein oxidation by reducing carbonyls concentrations, improved antioxidant capacity by enhancing antioxidant enzymes activities. In addition, OFI nopalitos reduces serum uric acid level and corrects endothelial dysfunction.

Conclusion OFI nopalitos probably because of their richness in bioactive compounds, improves cardiovascular risk markers in rats exposed prematurely to CD, and could constitute a novel functional ingredient in pharmaceutical and nutraceutical to prevent metabolic disorders induced by an unbalanced diets.

Disclosure of interest The authors declare that they have no competing interest.

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Prevalence of metabolic syndrome and associated cardiovascular risk profiles among prehypertensive adults



A. Mammeri^{1,2,*}, R. Guermaz^{1,2}, F. Kessal^{1,2}, S. Taharboucht^{1,2}, F. Hamroun^{1,2}, M. Ammi^{1,2}, N. Ait Said¹, S. Zekri^{1,2}, M. Brouni^{1,2}, A. Tebaibia^{1,2}

¹ Unit of Internal Medicine. El Biar hospital, Algiers

² Algiers university 1, faculty of medicine

* Corresponding author.

E-mail address: amel.mammeri@yahoo.fr (A. Mammeri)

Background Metabolic syndrome (MS) is associated with high cardiovascular risk (CVR). Its prevalence increases significantly with blood pressure levels.

Purpose Our work aimed to evaluate the prevalence of MS during prehypertension (PHT), according to the CVR of these patients.

Methods Our cross-sectional study included 399 patients with PHT (defined by JNC VII as a systolic pressure between 120–139 mmHg and a diastolic pressure between 80–89 mmHg). MS has been defined according to the criteria of ATP III (Adult Treatment Panel III) and IDF (International Diabetes Federation). All patients benefited from waist circumference measurement, lipid and renal

assessment, oral glucose tolerance test (OGTT), ambulatory blood pressure monitoring (ABPM), pulse wave velocity (PWV) measurement and measurement of the carotid intima media thickness (IMT). **Results** We included 156 men and 243 women, average age: 42.3 ± 13.9 years. Overweight and obesity affected respectively 35.8% and 31.8% of patients, dyslipidemia 17.3% of cases, and diabetes 13% of cases. Android obesity was noted in 26.31% of patients according to ATP III, and 49.9% according to the IDF. Twenty-five % of the pre-hypertensive patients had an MS according to ATP III, with high prevalence in the high CVR groups, including the presence of a masked hypertension (42%), a high PWV (26.4%), prediabetes (34.6%) or a high Framingham score (63%). According to the IDF, the prevalence of MS was 36.3% in pre-hypertensive patients; also, higher in the different risk groups (44%, 32%, 52% and 71.7% respectively).

Conclusion MS is common during PHT. Screening and early management of metabolic risk factors associated with this new blood pressure category should reduce the risk of subsequent cardiovascular mortality.

Disclosure of interest The authors declare that they have no competing interest.

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Effect of dietary fiber on oxidative status and lipid profile in aged diabetic rats



Khayra Mebarek, Samira Bouanane*, Hafida Merzouk, Fatima Zohra Baba Ahmed, Meryem Bensalah, Nesrine Samira Karaouzene, Wacila Nacer, Selma Bereksi Reguig Laboratory of Physiology, Physiopathology and Biochemistry of Nutrition, Department of Biology, Faculty of Natural and Life Sciences, Earth and Universe, University of Tlemcen, Algeria

* Corresponding author.

E-mail address: sambouanane@hotmail.fr (S. Bouanane)

Background According to many studies, dietary fiber has highly beneficial effects in nutrition and public health. A diet rich in fiber lower the incidence of gastrointestinal disorders, diabetes mellitus and cardiovascular diseases.

Purpose The aim of this study was to evaluate the effect of a dietary fiber-enriched diet (cellulose/mucilage: CM) on glucose, lipid metabolism, and oxidant status of Streptozotocin-induced diabetic aging rats.

Methods Experimental diabetes was induced in rats by Streptozotocin intraperitoneal injection (50 mg/kg body weight) in 0.1 M citrate buffer, pH 4.5.

Six-month-old rats, weighing 430 ± 10 g (n = 30), were assigned to two dietary groups, the control diet (C) and the dietary fiber-enriched diet (CM). After 2 months of experimentation, rats were anaesthetized with intraperitoneal injection of sodium pentobarbital (60 mg/kg of body weight). The blood was drawn from abdominal aorta into heparinized tubes. Plasma was used for determinations of biochemical parameters, atherogenic index and oxidant status markers (hydroperoxides, malondialdehyde: MDA).

Results Lower blood glucose, level of markers of oxidative status (hydroperoxides, MDA), as well as lipid parameters (CT, TG, C-LDL), and increased C-HDL were evidenced in CM rats. The atheroma index was also decreased in the CM rats compared to the diabetic C animals, demonstrating protection against coronary heart disease by dietary fiber.

Conclusion Dietary fiber would therefore aim to prevent or mitigate the deleterious effect of oxidative stress by reducing the accumulation of oxidative damage during aging. Consumption of cellulose/mucilage diet by aging diabetic rats provide reasonable glycemic control, lower blood lipids and decrease oxidant marker. It can offer a broad response to the complex problem of diabetes