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Review Article

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Therapeutic and Esthetic Potential of Buriti (*Mauritia Flexuosa* L f)

Edilson Martins Rodigues Neto[1,2*], Francisco Josimar Girão Junior[1], Edmir Geraldo de Siqueira Fraga[1], Márcia Oliveira Coelho Campos[3], Karla Bruna Nogueira Torres Barros[1,4] and Marta Maria França Fonteles[4]

[1] Catholic University Center of Quixadá, Pharmacy course, Quixadá-Ce, Brazil
[2] Federal University of Ceará, Department of Physiology and Pharmacology, Fortaleza-Ce, Brazil
[3]State University of Ceará, Fortaleza-Ce, Brazil
[4]Federal University of Ceará, Department of Pharmacy, Fortaleza-Ce, Brazil

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ABSTRACT

The buriti (Mauritia flexuosa L. f.) it is a native palm tree of the Brazilian Amazonian forest that belonging to the family Arecaceae and it is used there are centuries for the native population in the feeding and in the craft. Their leaves present six different flavonoids types with antioxidant potential and the fruit possesses nutritional characteristics that turn it a great candidate the functional food, this because it is rich in alimentary fibers, vitamins and antioxidant compositions, that they are also responsible for the photoprotective potential of the vegetable. The fatty acids mono and polyunsaturated presents in the plant are responsible for their properties antithrombotic and antiplatelet agent, and besides there is the presence of phenolic compounds that check properties antimicrobial and antitumorals to the vegetable. With the growth every time larger of the search for therapeutic alternatives and aesthetics of natural origin that are efficient is done necessary the deepened study of this vegetable, and for that reason it is that this work was elaborated. This is a literature revision about Mauritia flexuosa accomplished seeking their therapeutic and aesthetic potentials. The used databases were: Pubmed, Bireme, Lilacs and Scielo, as well as researches in the newspapers supplied by the Brazilian Portal of the Scientific Information on the subject, being used the descriptors: Buriti, Mauritia flexuosa, antioxidant potential and therapeutic potential. 20 articles published in the last ten years were selected, and those were correlated with the therapeutic and clinical potential aesthetic of the buriti. In that way the enormous therapeutic and aesthetic potential of the Mauritia flexuosa was exposed, showing as soon as is more necessary studies for consolidates its application in finished pharmaceutical forms.

Keywords: Antioxidant potential; Phenolic compounds; *Mauritia Flexuosa*; Buriti

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INTRODUCTION

The buriti (Mauritia flexuosa L. f.) it is a native palm tree of the Brazilian Amazonian forest, as well as in the Amazonian South American subtropical, besides, it can still be found in the Brazilian Savannah biome. She is belonging to the family Arecaceae and it is used there are centuries for the native population [1,2].

In the language Tupi buriti it means tree of the life and for presenting several uses, the tree, demonstrates a high economical potential, to know: to fibers they are used in craft, the fruits and stem are eatable, being those rich ones in oils used in the cosmetic industry, in a range of formulations [1-3]. For possessing a characteristic flavor and a peculiar plenty aroma the buriti it is used in several regional culinary species as candies, chocolates, jellies, ice creams, compotes and wines [4]. The fruit of the buriti presents multiple favorable nutritional properties that turn it a potential candidate the functional food as: wealth in alimentary fibers, essential fatty acids, high carotenoids content and A, C and E vitamins, besides phenolic compounds with antioxidant potential [3]. The consumption of alimentary fibers (resistant polysaccharides) in the daily diet it favors the increment of a range of benefits to the health: decrease of the carbohydrates absorption and lipids of the feeding, regulation of

the intestine, fostering of growth of germs probiotics [2]. In recent preliminary study it was verified that the constant and continuous consumption of the fruit of the buriti, in a tribe of the Amazonian Venezuelan, took a decrease of the resistance to the insulin, as well as a hyperlipidemias correction in that population [5]. Antioxidants are nourish capable to control the oxidative stress originating from normal metabolites of the biochemical routes of the organism; when it happens an unbalance in that system species are generated highly reactivate that can cause damages to woven prone, taking mainly to the precocious cellular aging due to the lipid peroxidation. Besides, it can be associated to the appearance of chronic-degenerative diseases of inflammatory character. Among the antioxidant species it can be mentioned: vitamins (A,C,E), carotenoid and phenolic compounds [4]. With the growth every time larger of the interest of the population for therapeutic alternatives and aesthetics of natural origin, to verify the viability of the use of the buriti in finished pharmaceutical formulations and its clinical and aesthetic potential if it turns necessary, because besides everything it is a plant of the national flora and that can come to generate pharmacist products with more competitive prices and easy readiness to the population. For the exposed, that study looked for to accomplish a literature revision about of the Mauritia flexuosa L. f. (buriti), seeking its therapeutic and aesthetic potential practices in medicine.

METHODOLOGY

Was conducted a literature review with research in the databases of Pubmed, Bireme, Lilacs and Scielo, as well as it researches in the newspapers supplied by the Brazilian Portal of the Scientific Information on the subject, being used the descritpors: Buriti, Mauritia flexuosa, antioxidant potential and therapeutic potential. 20 goods were selected published in the last ten years, and those were correlated with the therapeutic and clinical potential aesthetic of the buriti. To evaluate the therapeutic potential of the Mauritia flexuosa documentation it was looked for about antioxidant activity, antimicrobial, antiplatelet, antitumor, chemical and nutritional characteristics that they suggest a potential of therapeutic food. Besides, it was evaluated by the literature its aesthetic clinical potential in application in dermocosmetic formulations.

LITERATURE REVIEW

Antioxidant potential

The buriti has chemical representatives that guarantee an interesting antioxidant potential. During a study of chemical characterization accomplished with extract of the leaves of the Mauritia flexuosa 6 different flavonoids can be characterized with antioxidant potential: tricina-7-the-rutinoside, isoschaftoside, nicotiflorin, rutin, orientin and isoorientin [6]. Published data of a study that evaluated the antioxidant potential of phenolic extracts of the leaves, fruits and stem of the Mauritia flexuosa demonstrated, for the rehearsal of the reduction of the iron, that the extract of the leaf of the buriti introduced antioxidant potential, but that in against departure in the rehearsal of DPPH of capture of free radicals the extract of the fruit obtained better acting. That activity difference was justified by the different concentrations of representative chemicals present in each part of the plant, mainly, associated to the flavonoids and antocianins [7]. Another study that also evaluated the antioxidant potential of the hydrophilic extract of the buriti, but coming samples of the Amazonian area and of the Brazilian savannah; the method of ABTS, DPPH, was used reduction of the iron and of the capacity of absorbance of radicals of oxygen. The sample of the Brazilian savannah presented better performances in the accomplished tests when compared with the sample of the Amazonian area, that fact is explained by the different conditions of the biomes. The Amazonian is hot and humid while the savannah presents drier climate, besides, its soil is more acid and rich in aluminum that, probably, it will generate a larger oxidative stress in the plant, favoring, this way, the antioxidant agents' production [4].

Photoprotective potential

The radiation UVA is capable to generate in the human skin several answers from a reaction eritemiform ties the cellular aging; already about the radiations UVB, its effect cancer inductor has been documenting for causing damages in DNA for formation of carcinogenic photoproducts [8]. A therapeutic road for photoprotection consists of using topical pharmaceutical formulations that they present antioxidant potential to prevent the oxidative stress caused by the formation of coming free radicals of the solar radiation [9]. Do the Mauritia flexuosam present in its composition a high carotenoids concentration and other composed with antioxidant potential, being it? - Carotene the main constituent with about 90% of its composition. Besides, it still presents high levels of oleic acid? - tocopherol, also potent antioxidant [8]. Data of a rehearsal in vitro using emulsions of buriti oil as a carrier for photo blockers was verified that those formulations were capable to reduce the damages caused by the radiation UVA and UVB in irradiated keratinocytes, being considered as a potential formulation for use powders solar exhibition and as associated to photo blockers and chemical protectors [8].

Antiplatelet and antithrombotic potential

The pathogenesis of the cardiovascular diseases presents among other factors the platelet aggregation as event course protagonist [10].

The high consumption of vegetable oil rich in fatty acids mono and poly-insaturated has been associated a decrease of the risk of cardiovascular events in patient with high risk. That fact can be correlated with the effect anti-inflammatory of those fatty acids , that consequently reduce the activation of the coagulation cascade, for reducing the platelet activation in an indirect way and the oxidative damage [11]. In a study accomplished with the buriti oil in vitro rehearsals of activation and platelet aggregation was verified that the treatment of the plaques with the extract inhibited the expression of the p-selectin significantly induced by thrombin, besides, it inhibited the secretion of platelet ATP, reducing her activity, consequently. The oil also had the capacity to reduce considerably the thrombus formation when inhibiting the adhesion and the platelets interaction in the presence of collagen; it was still reduced the interaction capacity between plaques and leukocytes, important factor in the activation of the coagulation cascade and formation of the platelets thrombus [12].

For the exposed in that study is noticed that the oil of the buriti can be incorporate in the diet as an agent of prevention of the platelets aggregation and thrombogenesis, without there are the adverse effects common of the antiplatelet therapy, since its consumption is common and appealing in several areas of Latin America [12].

Antimicrobial potential

The extracts of Mauritia flexuosa possess in their composition a wealth of phenolic compounds, they can be mentioned: the chlorogenic acid , that presents immunomodulator and antimicrobial effects [13,14]; the caffeic acid that will also present immunomodulator activity and anti-inflammatory for the inhibition of the transcription factor NF-kB and antimicrobial activity [15,16]and the quercetin that will also present those activities [17,18]. A study in vitro evaluated the antimicrobial potential of extracts of several parts of the buriti against Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli, Micrococcus luteus and Bacillus cereus. Did the results evidence that the extract of the leaves of the Mauritia flexuosa presented the best antimicrobial effect demonstrating action against S. aureus, P. aeruginosa in the concentration of 50µg/mL and against M. luteus of 200µg/mL, front to the extract of the fruits that presented the same inhibition profile but with a higher concentration of 100µg/mL for S. aureus, P. aeruginosa [7].

Did another study evaluate the antimicrobial activity of ethanolic extract of the parts of the Mauritia flexuosa against stumps of Methicillin Susceptible *Staphylococcus aureus* (MSSA) and resistant Methicillin (MRSA). Was it evidenced that the extract of the stem presented a good growth inhibition in both to stumps in a concentration of 31,3µg/mL, did the extract of the leaves present good activity already only against MRSA in a concentration of 62,5µg/mL; both extracts presented more promising results than the used positive controls the canamicin (256µg/mL) and gentamicin (256µg/mL) [19].

Antitumor potential

The antineoplastic chemotherapy came as a revolution in the treatment of the several cancer types, increasing the patients' survival and taking some the cure, but as every type of pharmacological treatment she is not exempt of adverse and collateral effects. Like this, they are looked for alternatives more and more to present good antitumor potential and a better profile of adverse effects, and in that context they are had a focus in natural products [20]. Among the chemical representatives of the buriti extract some phenolic compounds present antineoplastic activity documented as the quercetin that already was tested in rehearsals with carrier pharmaceutical forms presenting good results [18]. Published data of a study that evaluated the cytotoxic effect of the buriti extract in five lineages of human tumor cells (lymphocytes T, monocytes and promyelocytes of leukemias; colorectal tumor and of mamma) they demonstrated that its antiproliferative effect in those neoplastic cells, presenting a favorable potential having resulted similar to the used positive control (doxorrubicin and cisplatin). This way, the Mauritia flexuosa comes as a promising therapeutic alternative in the antineoplastic therapy, because it would probably present a profile of more tolerable adverse effects than the classic pharmacotherapy [19]. Like this new studies in that field of use of the buriti should be driven for his incorporation in the oncologic clinic.

CONCLUSION

From the above we can see the great therapeutic, clinical and aesthetic potential of Mauritia flexuosa and their extracts. This way, more studies are needed to have its application in clinical practice consolidated through the placement in suitable finished pharmaceutical forms

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