THE SCIENTIFIC TRUTH ABOUT A SUPER FUNCTIONAL FOOD DENOMINATED COCONUT OIL

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ABSTRACT

Data available in numerous books and scientific studies recognized worldwide - some of them presented and discussed in this article - include coconut oil in the category today classified as super functional food. Despite its benefits, it is a food still underutilized due to the lack of consumer knowledge, including, in this case, medical professionals, who, for the most part, do not receive training focused on the nutritional area. It is also in this context that Brazilian medical associations - considered as references in the specialties they represent - that, instead of having a deep knowledge about the subject in question, publish information without foundation, capable of leaving the general population confused and insecure about the use of this food. Therefore, the main objective of this article is to highlight, in a didactic way and with maximum depth, the real benefits of *Cocos nucifera*, based on scientific evidence to prove this fact.

KEYWORDS: Coconut oil; Lauric acid; Thermogenesis; Medium-Chain Triglycerides; Monolaurin.

1. INTRODUCTION

Currently there are thousands of scientific works and more than a thousand books, available on Amazon's website, revealing the properties of the so-called *coconut oil*. Among this extensive bibliography, some titles stand out, such as:

- *The coconut oil miracle* and *Coconut cures* – both authored by Dr. Bruce Fife, one of the world's largest researchers on the benefits of *coconut oil*;

- *Coco – O milagre de uma gordura* – written by Dr. Sérgio Puppin;

- *The ultimate coconut book* – published by Shelly and Jeff MacDonald Penca;

- *Coconut oil* – Authored by Brian and Marianita Jader Shilravy, who brings in their pages more than 100 testimonials on the healing power of coconut oil;

- *Fatty acids in foods and their health implications* – Which totals 1,181 pages, discusses the properties of fatty acids, including those of coconut, and addresses its health benefits, described by Dr. Ching Kuang Chow.

The relevance of this food is also proven by a simple internet search, using as search engine the words "*coconut oil*", which registers: more than 25 million citations in Google; more than 125,000 citations in Google Scholar; More than 9,000 articles published on Mercola.com (the largest medical website in the world); in the academic platform PubMed, 1,659 scientific articles available.

In addition, it is possible to find more than 1,300 books dedicated to the ketogenic diet, supported by the use of Medium Chain Triglycerides (MCTs), which are mostly derived from coconut and highly beneficial to the body, as they become energy and do not cause weight gain. It is worth explaining that fatty acids can be short chain, medium or long chain. The main short chains (up to 6 carbons) are acetic (ethanoic); Vinegar, propionic (propanoic), butyric (butanoic), valeric (valerian) and caproic (hexanoic). The medium chain (8 to 12 carbons) correspond to caprylic (n = 8), capric (n = 10), lauric (n = 12). The long chain principal (14 or more carbons) are classified as myristic (n = 14), palmitic (n = 16), stearic (n = 18), arachidic (n = 20), beenic and lignoceric (n = 24). The main difference is that, after being assimilated by the intestine, the long chain fatty acids are mainly directed to the heart and then to the liver, where they are coupled to carrying lipoproteins LDL-type (low density lipoprotein), which take the fatty acids to the tissues. After they are transported back to the liver by HDL (High Density Lipoprotein) and excreted in bile.

Meanwhile, medium chain fatty acids, like coconut oil, are transported through the portal vein directly from the intestine to the liver, where they are converted into energy. They are not deposited in adipocytes and are therefore unable to promote weight gain. Instead, they are thermogenic. Thus, the MCTs contribute to the increase of the basal metabolism, dispensing the presence of hydrochloric acid and bile during its digestion and absorption. Therefore, coconut oil helps in the absorption of other nutrients, such as vitamins and minerals; is not stored in adipocytes in the form of triglycerides; is less caloric than other oils; and, does not require insulin during its metabolism.

2. MATERIAL AND METHODS

In order to develop this integrative review, the following steps were followed: 1) to identify the guiding question, followed by the search of the descriptors or keywords; 2) determine the criteria for inclusion or exclusion of the search in online databases; 3) categorize the studies, summarizing and organizing the relevant information; 4) to evaluate the studies by the critical analysis of the extracted data; 5) discuss and interpret the results examined, contextualizing the theoretical knowledge and evaluating its applicability.

In this study, the guiding question of the integrative review was to review the specialized literature in order to evidence studies that classify coconut oil as functional superfood/ super functional food. The LILACS (Latin American and Caribbean Health Sciences Literature), SciELO (Scientific Electronic Library online) and PubMed (NCBI, National Library of Medicine) and Amazon, were consulted, regardless of their source language.

3. LITERATURE REVIEW

Rich in lauric acid, which makes up 47% of its fatty acid content, coconut oil has numerous proven therapeutic actions. In contact with acidic pH of the stomach (equivalent to 2.0), it becomes monolaurin, a powerful antiviral, antibacterial and antifungal, which generates no resistance or side effect. Monolaurin also acts against the action of parasites. In a quick search on the Google Scholar platform, the word "*monolaurin*" (between quotation marks) records 2,370 results.

Combined with these attributes, coconut oil is known to be a potent anti-inflammatory, capable of reducing LDL and increasing HDL without altering cholesterol levels in most studies where the lipid profile was evaluated. It has an antithrombotic effect and inhibits lipid peroxidation, acting as an antioxidant, due to its high concentration of vitamin E and gallic acid. These and other benefits are proven in articles and medical scientific literature, which highlight their action in the prevention and effective treatment of various diseases, such as: Alzheimer's disease, HIV/ AIDS, cardiovascular diseases, cancer, diabesity (diabetes + obesity) and infections.

Ketone bodies - including acetone, acetoacetate and beta-hydroxybutyrate - generated from the MCTs of coconut oil, contribute significantly to the energetic metabolism of the brain. In her book, Dr. Mary T. Newport (2013)[1], after treating her husband with coconut oil and MCTs, reports how the ketogenic diet assists in the remission and cure of Alzheimer's Disease, resulting in a significant regression in both motor and cognitive symptomatology.

The MCTs, by contrast, correspond to 64% of the coconut oil composition, making this food ideal for newborns - when used in children's formulations - and the elderly undergoing parenteral nutrition. Patients who are comatose - who go through long periods of disability and are distant from the conventional diet - can receive MCTs from coconut oil directly into the vein (parenteral nutrition), in order to aid recovery.

In the process of weight loss, widely researched by Geliebter (1983)[2], the largest contribution of MCTs is to their caloric total (6.8 - 8.6 calories for medium chain triglycerides (MCTs) versus 9.0 for long chain triglycerides (LCTs)) and to stimulate basal metabolism (LCTs above 4% and MCTs greater than 14%)[3]. They are also more rapidly absorbed and transformed into energy, are not stored in the form of fat and discreetly stimulate thyroid function, in addition to producing the sensation of satiety.

Results of a study conducted by Assumption *et al.* (2009)[4] disclose that women with abdominal obesity and BMI less than 35 kg/m^2, treated with 30 mL of coconut oil for 12 weeks, reported a reduction of BMI and waist circumference. Because it is a modulator of weight, individuals undergoing a diet with coconut oil, if they are obese, tend to lose weight and, if they are very lean, tend to gain weight.

Besides its inherent benefits, coconut oil, when used in cooking, generates no trans fats, and substitute polyunsaturated omega-6 oils, which are proinflammatory. Due to the increased HDL/ total cholesterol ratio and the non-generation of trans fat, it is also ideal for cooking, baking and frying foods[5]. The contribution of MCTs and coconut oil in the treatment of diabetic (diabetes + obesity) is mentioned in several scientific studies, such as those conducted by Geliebter (1980)[6]; Baba (1982)[7], Hill *et al.* (1989)[8], Scalfi (1991)[9], Garfinkel *et al.* (1992)[10], Parekh *et al.* (1998)[11], Lindeberg *et al.* (1999)[12], St-Onge *et al.* (2002)[13], Han *et al.* (2007)[14], Cardoso *et al.* (2015)[15].

While the benefits of medium chain fats in the treatment of type 1 diabetes have been investigated and demonstrated by Page (2009)[16], coconut oil, through lauric acid - which turns into monolaurin - acts against bacteria and other microorganisms, such as: *Candida albicans*, cytomegalovirus, chlamydia, groups A, F and G streptococci, *Neisseria ghonorreae*, *Staphylococcus aureus*, *Streptococcus agalactiae* and HIV virus, without affecting the intestinal microbiota[17].

Fatty acids terminate in a carboxylic group. When they bind to the glycerol, in three positions triglycerides are formed. If they are two, the result will be a diglyceride and only one will be a monoglyceride or it may present as free fatty acid, separated from the glycerol molecule. Fats are ingested in the form of triglycerides, transformed by the digestive tract into monoglycerides or free fatty acid before being absorbed.

In its 8,000 years of existence - widely practiced

nowadays - Ayurvedic medicine considers coconut oil an essential ingredient in numerous medicinal preparations. Even in the face of this reality, it is possible to find nutrition professionals who classify this food harmful to human health, without showing any scientific data that proves such an affirmation, as well as presented in TV programs.

Recalling one Abraham Lincoln's phrase: "*We can deceive a few, for a long time. We can deceive many, for a short time, but we cannot deceive many, for long time*".

Coconut Oil X Other Vegetable Oils

Thus, the comparison of lipid and fat always requires evaluation of an important biochemical and physiological aspect of the body:

- A triglyceride (fat) or triacylglyceride (TAG) equals one glycerol plus three fatty acids. About 95% of fats ingested in the diet come in the form of triglycerides (TGs), which constitute the body's main energy reserve.

On the basis of these facts, it is therefore foolish to say that coconut oil (fat) is harmful to health. The body offers no resistance to its metabolism, which does not occur with the other oils produced from canola (Colza-oil or Rapeseed-oil), soybean, sunflower, corn, peanut, etc. To avoid rancidity, after 10 days of production, these oils are partially hydrogenated, making them last longer on supermarket shelves. If on the one hand this benefits the entire production chain, on the other hand it substantially compromises the health of the population, which actually consumes trans fat, a true antinutrient.

It is interesting to note that among the populations where the use of coconut oil predominates there are practically no diabetes, hypertension and elevated cholesterol, according to data from several studies conducted worldwide. In contrast, canola oil, erroneously considered a health ally, is derived from the creation of a new molecule, which should be tested as suggested by Dr. David Klurfeld. Several studies point to this fact, revealing that canola oil:

- It is one of the most harmful oils to human health, being Colza, its source of origin, a plant considered poisonous even for the animals, for presenting 55% erucic acid in its original composition;
- Colza is a plant used in the production of lubricant, which has erucic acid as a component, one of the causes of myocardiopathy. Due to the inexistence of a plant called canola, the non-existence of canola oil is confirmed. There is canola oil, but not a "oil of canola";
- Has its name derived from the initials CANOLA *(Canadian Oil Low Acid).* Genetically modified by the Canadian government, Colza, instead of 55% erucic acid, produces between 1% and 5% of that acid; receives in this case, the name CANOLA. When partially hydrogenated, erucic acid, present in Colza, transforms into brassidic acid, which is even more harmful to the body because it is trans fat. Colza is the translation of the word *Rapeseed* into English, which can also mean "the seed that rapes".

It is important to mention that a formation of toxic aldehyde, in millimoles per liter, after heating at 180 °C for a period of 30 minutes corresponds to 1 (one) in the coconut oil frying process; 1,5 with butter; Almost 3.0 with extra virgin olive oil; Almost 5.0 with corn oil; And more than 5.0 with sunflower oil. Therefore, among the oils available, coconut oil can be considered ideal for cooking, roasting and frying.

Cholesterol is not fat

Three types of lipids are known: sterols: including phytosterol, ergosterol and cholesterol, lipoids: like phospholipids, like phosphatidylcholine (lecithin), and fats. All fat is a lipid, but not every lipid is fat. Cholesterol is a lipid, but contrary to what many people believe, it is not fat but a sterol.

There is, therefore, a serious misconception related to the theory of traditional cardiac diet. To date it is believed that the increase in saturated fat intake - wrongly considered cholesterol - causes the elevation of blood cholesterol and, consequently, heart disease. However, it is only a hypothesis, which has never been confirmed by any scientific study. Two recent studies, supported by meta-analysis and joint assessment of more than 800,000 patients, concluded that saturated fat consumption does not increase the risk for cardiovascular disease[18,19].

Conducted in 2010 and 2014, these studies analyzed a total of 878,272 patients, resulting in the same conclusion: *Saturated fat does not increase risk for cardiovascular disease.*

Origin of the misunderstanding

Cover of Time magazine, on January 13, 1963, the physiologist Ancel Keys, after evaluating epidemiological data of the population of 22 countries, chose 7, in order to establish a correlation between the increase in calorie and fat consumption to the deaths caused for heart disease, seeking in a pioneer way the basis of this theory.

Without establishing a cause-and-effect relationship, but only promoting a correlation, Keys simply ignored data from 15 countries researched, since they did not fit his hypothesis.

We also know that, like Finland and Mexico, which consumed calorie equivalents in their diets, they had extremely different rates of coronary disease in their populations (24 times higher in Finland than in Mexico),

Jacob Yerushalmy of the University of California-Berkeley in the United States.

In his study, Yerushalmy included data from the 22 countries, revealing that if everyone were considered, the results would be the opposite of what was reported by Keys. This makes the theory that saturated fats increase cholesterol is totally contested, considering that:

- Cholesterol makes up 50% of cell membranes;
- Reduces levels of Lp-a (lipoproteins), considered a risk factor for atherosclerotic diseases;
- The heart does not depend on glucose, but, fundamentally (about 60% to 70%), of saturated fatty acids;
- 75% of the atherosclerotic plaque consists of polyunsaturated fats of vegetable origin and not saturated fat;
- 55.3% of breastfed fat, the best food according to the World Health Organization (WHO), is saturated;
- Recent studies, including those performed with 878,272 individuals, show that saturated fat intake does not increase the risk for cardiovascular disease[18,19]

Inhabitants of northern India consume 17 times more saturated fat than those in the south and have seven times less heart disease[20]. According to research conducted in the 1960s by George Mann of Vanderbilt University, members of the Masai tribe in Kenya fed predominantly red meat and milk on a diet composed of about 60% fat, being at least half of that saturated fat.

This diet was also supplemented with bovine blood, extracted daily from the animals. Curiously, the masseuses were very thin, had lower cholesterol levels, and were virtually free of heart disease. British researchers also monitored a group of Masai men, noting that - after moving these natives to Nairobi, the capital of Kenya, which resulted in the consumption of processed foods and large amounts of carbohydrates - there was a rise in cholesterol levels and a Substantial increase in the prevalence of cardiovascular disease.

This only proves that the intake of too much or too little saturated fat does not increase or decrease the risk of cardiovascular disease, as emphasized in the conclusion of the two studies mentioned. After performing a survey of 1,700 patients with aortic aneurysm, Dr. Michael DeBakey also found no correlation between blood cholesterol levels and the incidence of atherosclerosis[21]. Another study, this time promoted with a long-lived community in Georgia (former Soviet Union), found that those who ate the most fatty foods had longer lives[22].

According to Alfin-Slater *et al.* (1980)[23], the cholesterol from the diet has an important role in maintaining the health of the intestinal wall. Today, it is known that dysbiosis causes many problems to the body, and the intestine is responsible for the origin of autoimmune diseases, which can be prevented with the intake of saturated fats.

In one of the most significant epidemiological surveys for global cardiology in the small town of Framingham, Massachusetts, at the beginning of 1948, with 40 years of follow-up of the study population, Dr. Castelli, professor of Harvard Medical School and study coordinator, highlighted at the conclusion of the article on the topic that:[24]:

"*In Framingham, the more saturated fat, the more cholesterol and more calories someone ingests, the lower the person's blood cholesterol level*". (Castelli *et al.*, 1992)[24].

Historical facts support this conclusion, as can be seen in the comparison of diet in the United States between 1910 and 1970, presented in an article published by Enig (1998)[25]. While in 1910, myocardial infarction did not exist in that country, predominantly the animal fat diet (83%) and the annual consumption of eight kilos of butter, in 1970 myocardial infarction became the main cause of death, although the use of animal fat had been reduced to 62% and butter consumption to 1.8 kg.

Historical mistake

Due to this fact, it is possible to conclude that the population in general was mistakenly led to exchange saturated fat for the unsaturated fat of vegetable oils. It is interesting to note that in the period mentioned in the study by Dr. Mary Enig - considered to be the world's largest authority on fat, one of the main defenders of coconut oil - consumption of polyunsaturated vegetable oils increased by 400%. Remembering that when heated, vegetable oils become oxidized fats, toxic to the body, as opposed to saturated fats.

In the year 1911, unsaturated oils were introduced into the diet of Americans. After completing his postgraduate program in Europe in 1918, Dr. Paul Dudley White brought the first electrocardiograph from the Netherlands to the United States, detecting, even in the midst of the doubts of numerous colleagues, the occurrence of myocardial infarction after seven Years of studies and evaluations. In 1930, three thousand people died as a result of a country infarction, a number that jumped to 300,000 in the 1960s.

Frightened by the possibility of suffering cardiovascular disease, the American population demanded measures, which resulted in a massive campaign against the consumption of fats and, consequently, a change of strategy of the food companies.

With the reduction of fat in their composition, the products became virtually tasteless, leading to a considerable addition of sugar and carbohydrates to make them palatable. However, as already proven in studies

with rats, sugar causes a greater addiction than that caused by heroin. However, it is a fact that much of this history, over the years, has been lost. Today, unfortunately, the ignorance about this issue is perceptible, and the way the misinformation is disseminated is clear.

As reality often differs from what many people advocate, we now see individuals - who for years follow a low-fat, high-carbohydrate diet - have a compromised steroid hormone profile and a neurotransmitter imbalance, binge eating disorder. Remembering that steroid hormones depend on cholesterol.

Therefore, it should be understood that there is an important difference between saturated, monounsaturated and polyunsaturated oils. When a person buys a polyunsaturated vegetable oil, he takes home the trans fat percentage needed not to make that product rancid on the supermarket shelf.

The salubrity of an oil depends basically on the carbon chain, its susceptibility to peroxidation, the free radicals generated and their saturation. Much of the composition of coconut oil is already saturated. However, it is composed of medium chain saturated fatty acids, whose metabolism is very different from those of long chain.

Scientific data

In America, 2,500 people die every day due to a heart problem. This corresponds to one dead person every 34 seconds. In contrast, residents of the South Pacific islands do not suffer from heart disease. It was on the basis of this comparison that Dr. Ian A. Prior and Dr. Jon J. Kabara conducted a study[26] supported by the analysis of the diet with high intake of coconut oil (75% of the fat consumed) of the inhabitants of the islands of Puka-Puka and Tokelau in New Zealand.

Among the results, it is noticed that, in spite of the high ingestion of coconut oil, the inhabitants of these places practically did not present/ display diagnosis of cardiovascular disease. However, when moving to the capital Wellington, New Zealand, the population previously evaluated had an increase in this incidence due to the consumption of processed foods.

A meta-analysis of 60 clinical trials on MCTs and lipidogram reveals that medium-chain triglycerides, present in coconut oil, improve people's lipid profile[27]. Coconut oil also stimulates the HDL/ total cholesterol ratio when it is considered that predominantly coconut-eating populations have a very low incidence of cardiovascular disease, according to data published in Lindebergh's *et al*. (1994)[28] and Mendis *et al.* (1980)[29]. Kaunitz (1992)[30], concluded that although the coconut intake index is the highest in the Republic of the Philippines, the Bicol region had the lowest incidence of heart disease in the country.

Among the data published by the authors, mortality due to CVD and stroke, per 100,000 inhabitants per year, corresponded to 1,802 in Russia, 814 in the United States, 548 in Japan and only 120 in the Philippines, a country that is one of the largest coconut consumers in the world. In another research, Dayrit (2003)[31] the Bicol region recorded the lowest incidence of CVD in the country, at the same time that it ranks as the largest coconut consumer in the Philippines.

The evident relationship between the consumption of coconut oil and the low levels of cardiovascular diseases is proven in other relevant studies, related in the bibliographical references of this article and available for the consultation of those who seek more knowledge on the subject[15, 27, 28, 30, 31, 32, 33-41].

Conquering similar interest, the beneficial effects of coconut water on HDL levels are demonstrated in Zhao's *et al.* (1995)[42] article. In the relationship between calcium and magnesium, coconut water with 1: 1.04 reveals another attribute, compared to 1: 3 in seawater; 1: 1 in the pumpkin; 7: 1 in cow's milk; 27: 1 in orange juice; 100: 1 in antacids. Among sodium and potassium, this ratio, compared to coconut milk, is equivalent to 0.42, whereas coconut water contains more potassium than sodium (2.4: 1) and magnesium than calcium (1.04 :1). These results led researchers to develop a study on the intravenous application of coconut water[43], in cases of renal lithiasis[44] and intraocular glaucoma[45].

Coconut composition

The *Cocos nucifera* (coconut) species originated in Cape Verde and was introduced in Brazil in 1553, years after the discovery of the country. Coconut consists essentially of 47% water, 34% fat, 11% fiber, 4% protein and 4% starch and sugar. When dry, its composition corresponds to 3% water, 64% fat, 15% fiber, 9% protein and 9% sugar and starch.

Coconut oil, in turn, has its composition shown in Figure 1 and Table 1.

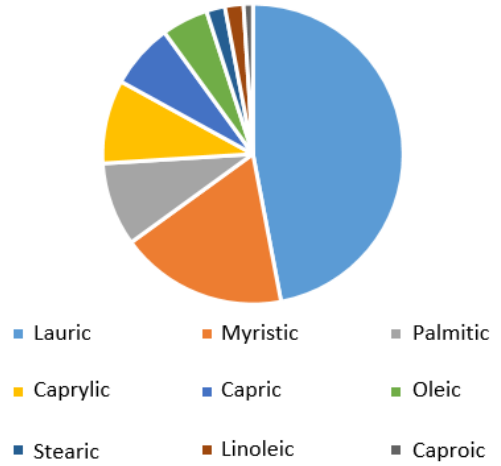

Figure 1. Composition of the oil of *Coco nucifera*, according to Table 1.

Table 1. Composition of *Coco nucifera* oil.

Component	%	Carbon atoms
Lauric acid	47	12
Myristic acid	18	14
Palmitic acid	9	16
Caprylic acid	9	8
Capric acid	7	10
Oleic acid	5	18:1, n-9
Stearic acid	2	18
Linoleic acid	2	18:2, n-6
Caproic acid*	1	6

*Excellent for the large intestine

For the *in nature* use with fibers, mineral salts, medium-chain fatty acids (caprylic, capric and lauric), proteins, vitamins (A, B1, B2, B5 and C) and water, the coconut undergoes a grinding step and cold pressing, in which the extraction of milk, oil (virgin and extra virgin) and dehydrated coconut takes place. In this case, no additives are used and the oil has an acidity of less than 0.5%.

In addition to being tasty, coconut water is an excellent natural moisturizer, rich in minerals, with an isotonic concentration for the human body. Ingested three times a day, one tablespoon of coconut oil (14 grams) is able to prevent and contribute to the treatment of numerous diseases.

Regarding its benefits, coconut oil promotes the increase of general thermogenesis, beta-oxidation, postprandial thermogenesis, CCK and PPY production and the sensation of satiety, besides presenting anti-viral, antifungal and antibacterial properties. It is also capable of inhibiting HIV reverse transcriptase, preventing the manifestation of AIDS, and acting as an immunomodulator (lauric acid), contributing to the prevention of autoimmune diseases.

The use of lauric acid in the treatment of various diseases, especially AIDS, has gained space in specialized medical sites, which often address this issue with the publication of different studies and researches. In these studies, it is possible to verify that 14% of the saturated fat present in breast milk is composed of lauric acid, as well as in babassu oil (44%), palm oil (48.2%) and coconut oil (47%). The therapeutic effects of this important component for health are also addressed in several scientific articles, such as those signed by Garfinkel *et al.* (1992)[10] and Skrivanova *et al.* (2006)[46].

Rich in fiber, coconut butter does not require insulin to be digested and is therefore ideal for diabetic patients. Because it is immunomodulatory, it also benefits patients with autoimmune diseases. Studies in India have shown that dry coconut, as well as magnesium sulfate, promotes the elimination of 90% of the parasites present in the body after 12 hours of ingestion.

The MCTs are efficient against Candida, *H. pilory* and Giardia. Candidiasis, for example, can be cured with the ingestion of three tablespoons of coconut oil within 30 days. Several researches - also available for reading, according to the suggested relationship in the bibliographical references of this article[47-52] –, prove the benefits of coconut oil and MCTs in infections and infestations.

The dissolution of the fats present in the protective coat of the virus is another important action attributed to the lauric acid (monolaurin) present in the coconut, described by Dayrit (2000)[49] and Hierholzer & Kabara (1982)[53].

Petschow *et al.* (1996)[54], on the other hand, conducted an important study on the benefits of MCTs in ulcers with presence of H. pylori. Specifically in the digestive system, the properties of MCTs aid in the treatment of irritable colon, ulcerative colitis, cystic fibrosis and Crohn's Disease without causing any change in the intestinal microbiota.

When the subject is the treatment of cancer, several studies show how coconut oil becomes an important ally. These searches are also available for reading, according to titles listed in the bibliographical references of this article[55-58].

Like coconut butter, coconut meal is high in fiber (61%), 7% soluble and 93% insoluble. Burkitt (1981)[59] Stresses that fibers aid in the treatment of appendicitis, hiatal hernia - which in the United States occurs in one in four adults and in Kenya in one in every thousand adults - of hemorrhoids, gallstones, varicose veins and Diverticulosis, as well as CVDs, in addition to promoting better insulin sensitivity.

Based on the findings - scientifically documented - it is possible to affirm with complete conviction, contrary to misinformation on the subject, that, more than an excellent food, coconut and its derivatives contribute to the maintenance of health, due to Its antimicrobial, anti-inflammatory and immunological action, considering that MCTs present in its composition decrease IL1, IL-6 and IL-9 and increase IL-10.

To conclude, some websites of reference reinforce even more these attributes:

- www.coconutoil.com
- www.fda.gov/oc/initiatives/transfat
- www.westonaprice.org
- www.lauric.org/index.html
- www.westonaprice.org/knowyourfats

4. CONCLUSION

In 2005, the New England Journal of Medicine (NEJM) published a work revealing that, for the first time in human history, the generation that is being born will live less than that of their parents. Much of this

responsibility is due to vegetable oils (trans fat, antinutrient), widely marketed and used in the preparation of meals served both inside and outside the home.

In the list formed by these oils, many of them disclosed as health agents, one of the highlights, is Canola oil, the most deleterious, due mainly to the presence of erucic acid (causing heart diseases) in its composition.

Contrary to this observation, coconut oil - a superfood - is capable of promoting innumerable health benefits, but it faces adversities due to the lack of knowledge of its attributes and the dissemination of undue information, made without any scientific basis.

In addition to the list of materials that prove the attributes of coconut oil available in this article, it is important to note that no work has been found in the medical literature to indicate that its use is harmful to human health in any way.

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