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Information

Yerba Mate or Paraguay Tea

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Beverages based on *Ilex paraguariensis* A. St.-Hil. are used in the south Brazil and other Latin American countries located at the so-called southern cone. It is known as chimarrão or mate in south and southeast Brazil, tererê in Uruguai and midwest Brazil and mate in Argentina. The denomination mate came from the Quichua term *mati*, the name of the recipient (in Brazil also called cabaça, cuia or porongo – obtained from *Lagenaria* sp. fruits), and *Ilex* L. is used to prepare and drink chimarrão (Boguszewski, 2007).

The traditional habit to drink this beverage is historically connected with native people from Brazil, Paraguay and Argentina, and particularly to the Guarani ethnicity. Among Guarani people, the plant is known as *caá* (herb) while the infusion as *caá-i* (herb water). Jesuit priests (1610–1768) described the use of this beverage as the main foodstuff among the Guarani, with intensive trade among tribes from Brazil, Bolivia, Peru, and Chile (Boguszewski, 2007). Eventually the habit of drinking mate spread among the Portuguese colonizers, and plantations and a trade network were established by the Jesuits to meet this demand.

According to Jesuit priest Antonio Ruiz de Montoya (1585–1652), mate, like tobacco, was originally used in a more restrict fashion by Guarani xamãs to consult spirits and have visions. Mate was also offered to Guarani elderlies in order to maintain and/or recover health. Montoya reported that natives could work all day without eating if mate was consumed every 3 h. With time, more and more native and non-native individuals got used to drinking mate, especially early in the morning before leaving for work and throughout the day (Contini, 2006). Up to this day, in the state of Rio Grande do Sul it is common to see students drinking mate during graduate classes or at study rooms, as well as at several working offices.

Two basic processes are used to prepare *Ilex* sp. leaves to be consumed: as the more traditional chimarrão or as tea. For chimarrão, leaves are dried after harvested and powdered

to result in an intense and aromatic green powder (from quite coarse to very fine), characteristically bitter. In order to prepare mate tea, dried leaves are toasted and finely pulverized, to produce a dark sweet flavored tea (Bastos et al., 2007). Cold mate tea is widely used in southeast Brazil, in special at Rio de Janeiro, as a refreshing beverage served with or without lemonade. Mate tea sellers offering is part of the landscape in Rio de Janeiro beaches (such as Copacabana, Ipanema, and Leblon, among others).

In the south of Brazil and Argentina the *Ilex*-based chimarrão is drunk with hot water, by itself (that is, just *Ilex* leaves and water) or eventually with small amounts of herbs (aromatic or medicine) added on top of the *Ilex* leaves. Tererê in Uruguay is prepared with hot or iced water (in cold and hot months, respectively), and sugar is often added. The major difference from the tea, as we mostly know, is that the milled leaves are arranged in the cuia (the above mentioned recipient traditionally made from the fruit bark of *Lagenaria vulgaris* L., but nowadays also available in metal and even rubber like polymers) and the hot water is repeatedly poured over after each time the water is completely sucked out, until the leave mass is considered to be “washed”, resulting in a tasteless tea. The water is sucked from the cuia by a tool referred as “bomba”. People would share chimarrão, referred to as “roda de chimarrão”, passing it along each time it runs out of water; usually there is one person that keeps refilling the water, to whom the cuia is passed back after each person finishes its turn. Chimarrão is so shared with family, neighbors, and friends, passed along during classes, in the parks, or may be consumed alone often before or right after breakfast (Bracesco, 2011).

It is interesting to note how some of the current tradition in drinking mate is rooted in historical reasons. A tradition in chimarrão preparation and collective drinking is that the person who prepares the chimarrão should drink the first round before passing it on to someone else. This tradition is

related to the Jesuit period, when priests tried to make native peoples stop drinking mate because of its reputed aphrodisiac power. With that purpose in mind, Jesuits spread among natives that a devil called *Anhangá Pitã* lived inside mate. In order to prove that there was no devil in the beverage, the Guarani people started the ritual to drink the first round before offering chimarrão to someone else. (Boguszewski, 2007).

Traditional health claims for “mate” in Brazil include digestive, appetizer, and stimulant; Moreover, it could be used topically as wound healer. *Brazilian Pharmacopeia* first edition (1926) cites mate among the diuretic species. Especially when prepared with hot water, several compounds can be extracted in enough quantities that users absorb pharmacology meaningful amounts of bioactive substances. Those are caffeine (psychostimulant), theobromine (diuretics), catechines (antioxidants), and others. The quantity of each of these compounds varies considerably depending on the variety and quality of the plant used in the preparation, but the average content of caffeine is estimated in circa 8%. Saponines are also present and responsible for the foam seen when water is added (Bracesco, 2011).

Several research reports indicate the biological effects resulting from ingesting mate, in a regular basis, for long enough periods of time. One has to keep in mind that while studies are somewhat controlled, the amount of mate consumed and the variability of plant quality and mode of preparation ingested in the population vary enormously. That is valid for how psychoestimulating is the beverage, which will depend on the amount of caffeine of that particular drink and the individual sensibility to caffeine. A study in a Parkinson model of mice showed the beneficial effects of an *Ilex* extract (Milioli, 2007). If drinking mate tea, or even using the extract as herbal, it can assist Parkinsonian patients demand a thorough research that would take several years to reach any meaningful conclusion.

Out of the nervous system, one study reports that mate consumed in a regular basis may be capable of decreasing LDL (the so called bad cholesterol) levels, while increasing HDL (the so called good cholesterol) levels. In the same line, another study showed that mate intake could potentiate the effect of drugs used to control cholesterol levels, such as statins. Mate intake can also increase antioxidant defenses, assisting in minimizing the deleterious effects of free radical species in several body targets. These combined effects can be beneficial to patients with excessive cholesterol levels and vascular diseases. It has been shown that *Ilex* leaves reduce the weight gain in fed of mice with a fat diet. There are also data suggesting that mate can have thermogenic properties (speeding the metabolism). Because there is such a high interest in weight control, studies are being conducted – but at this point there is no certainty if consuming mate tea has any benefit in this context (Bracesco, 2011).

During some time the epidemiology observation that in areas where chimarrão is routinely consumed was associated

with higher prevalence of oral pharyngeal (mouth, throat, and esophagus) cancer raised concerns. It was nevertheless unequivocally shown that the real cause underlying the association was the use of excessively heated water (a habit found especially among men in rural areas) rather than any of the substances found in the plant of *Ilex*. In fact, it was latter shown that some of the substances from *Ilex* L. are capable to prevent the changes in DNA, and therefore in principle would rather have a preventive property towards mutations usually associated with cancer. It is not clear, however, if the same properties proven experimentally with *in vitro* assays performed with isolated substances are applicable for drinking mate. There is, however, an actual problem with mate as it related to cancer, associated with the drying process when wood is used as fuel: in this case the *Ilex* leaves can be contaminated by cancerigenous (pro cancer) substances known to exist in wood smoke. For this reason, in recent years, the industrial processing of *Ilex* leaves abandoned the use of wood as drying fuel (Bracesco, 2011).

Those who suffer from heart burn, excess gastric acidity, or gastritis should not drink too much mate given that caffeine may worsen the condition. Those suffering from flatulence should also go easy on chimarrão, since ingesting air while sucking from the traditional “bomba” may worsen the condition. It has been suggested that it is by ingesting air and liquid, instead of food, that drinking chimarrão may help loosing weight. After all, it is a psychostimulant and ingesting any kind of tea takes away the urgency to eat, or even the hunger, for a certain amount of time (Bracesco, 2011).

References

- Bastos C, Janzantti N, Marques R, Franco M, 2007. Determinação Do Perfil De Compostos Voláteis e Avaliação do Sabor e Aroma de Bebidas Produzidas a Partir da Erva-Mate (*Ilex paraguariensis*). *Quim Nova* 30(3): 513-518.
- Boguszewski JH, 2007. Uma história cultural da erva-mate: o alimento e suas representações. Dissertação apresentada ao Curso de Pós-graduação em História da Universidade Federal do Paraná, como requisito parcial à obtenção do título de mestre. Curitiba.
- Botrel R, Rogrigues L, Gomes L, Carvalho D, Fontes M, 2006. Uso da vegetação nativa pela população local no município de Ingaí, MG, Brasil. *Acta Bot Bras* 20(1): 143-156.
- Bracesco N, Sanchez AG, Contreras V, Menini T, Gugliucci A, 2011. Recent advances on *Ilex paraguariensis* research: Minireview. *J Ethnopharmacol* 136(3): 378-384.
- Contini AZ, 2006. *O Gênero Ilex: Alternativas de Sustentabilidade no Uso de Etnoespécies pelos Kaiowá e Guarani em Mato Grosso do Sul*. Dissertação Programa de Pós-graduação em Desenvolvimento Local. Universidade Católica Dom Bosco-Campo Grande. 2006
- Lorenzi H, Matos FJA, 2008. *Plantas Medicinais no Brasil-Nativas Exóticas*. Nova Odessa (SP): Instituto Plantarum.
- Milioli EM, Cologni P, Santos CC, Marcos TD, Yunes VM, Fernandes MS, Schoenfelder T, Costa-Campos L, 2007. Effect of acute administration of hydroalcohol extract of *Ilex paraguariensis* St Hilaire (Aquifoliaceae) in animal models of Parkinson's disease. *Phytother Res* 21(8): 771-776.