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Characteristics of tropical wines produced in a new latitude of Brazil

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Wines are traditionally produced in temperate climate zones, in the North and South Hemispheres, with one harvest per year, between August and October in the North, and between December and March-April in the South. Tropical wines are a new concept of vitiviniculture that is being developed in Thailand, India, Myanmar, Venezuela and Northeast of Brazil. The new Brazilian frontier is located between 8-9° latitudes of the South Hemisphere. Grapes and wines from this region present peculiar characteristics, being possible to harvest grapes and winemaking in all months of the year, and one vine produces two times per year, due to the high temperature, with annual average of 26.5°C, high solar radiation and water availability for irrigation. Tropical wines from Brazil have presented interesting chemical characteristics, because metabolite profile can change according to the harvest date. The temperature during maturation and harvest has a high importance for grapes and wine composition. For the first period, the maximum temperatures are about 30-32°C for days, and the minimum 18-20°C during nights, having interesting amplitude for grapes. On the other hand, for the second period of production, high temperatures are observed, between 32-35° for nights and 40-45°C during days. It can be observed, wines presenting different characteristics if they were elaborated in the first or second periods of the year. Works are carried out to understand effects of the season on grape and wine characteristics. Results are presented and discussed, showing mainly phenolic and aromatic compound evolution according to the harvest date.

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Dry heat parboiling – An altered method to improve quality of rice (*Oryza sativa*, L.)

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Parboiling is a popular post-harvest paddy processing practice in India, Pakistan and African countries. Conventional parboiling involves hydration of paddy by soaking in water followed by open steaming. Steaming under high pressure is a more recent technique practiced for industrial production of parboiled rice. Steaming is followed by drying under the sun or ovens and milling to produce staple grains. A third type called dry heat parboiling involving roasting previously soaked paddy or rice using heated sand or hot pan was earlier considered to produce only speciality products like popped and puffed rice. However, this process involving instant heating at high temperature also encompasses the molecular changes as seen in steam parboiled rice. The step of drying is not necessary here because extensive drying occurs simultaneously during the heating step. In this study, dry heat parboiling of sufficiently soaked paddy with distinctly different amylose content was carried out under controlled conditions of temperature and time. Neither popping of paddy nor excessive puffing of the gelatinized kernels were allowed. The technique resulted in increased kernel hardness resulting in high head rice yield. Excessive damage to the amylopectin resulted in high water uptake properties and gave a continuously rising RVA pasting curve. XRD and DSC analyses indicated formation of starch-lipid complexes. Waxy rice varieties with no amylose content also showed the corresponding peaks, confirming complex formation amongst amylopectin and lipid after parboiling. Occurrence of retrogradation on adding water to gelatinized starch in DSC pan was evident. Dry heat parboiling also notably increased the digestibility of starch in all the varieties. The technique can therefore be effectively used for commercial paddy parboiling to produce staple rice for targeted population groups.

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