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Effect of heat treatment and microwave modification on emulsifying activity and rheological properties and of gum karaya

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Gum karaya (GK) is a polysaccharide gum from *Sterculia urens* tree. It is used as an emulsifier and thickening agent in cosmetics and pharmaceuticals. However, it has very strong swelling properties, high viscosity, and low solubility, providing the restricted applications in food industry. The main objective of this study was to investigate the effects of different heat treatment and microwave variables (i.e. time: 8, 10 and 12 min; power: 700 and 1000 W) on the functional properties of gum karaya (GK) in the aqueous system and oil in water (O/W) emulsion. In this regard, the rheological properties, emulsifying activity, average droplet size, and surface morphology of the native- and microwave-treated gums were analysed and compared. Dynamic oscillatory test indicated that the microwave treated gum karaya had more gel-like behaviour than viscous-like behaviour ($G' > G''$) at a relatively high concentration (20% or 20 g/100 g). When gum karaya was treated by microwave for 8-12 min, both elastic (G') and viscous (G'') moduli were declined. The native and microwave treated gum karaya exhibited a shear-thinning (pseudo plastic) behaviour in the aqueous system and O/W emulsion. The results showed that the microwave treated gum karaya had smaller particle than the native gum in the aqueous system. On the other hand, the emulsion containing the microwave treated gum karaya had finer emulsion droplets than the control containing the native gum karaya. This confirmed that the application of microwave treatment led to significantly ($p < 0.05$) improve the emulsifying activity of gum karaya.

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Technologies convergence and your relations among ISO TC229 and IEC TC 113

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Nanotechnology breaks as generator of welfare in all areas of our lives, can be seen that new technology is creator of synergy and brings with it various risk that must be properly addressed in the regulations. The objective of this word is to present recommendations to be considered for the introduction of regulation in our country on the important aspects as the conformity assessment of the research and production thorough the relations among metrology, standardization and accreditation. The nano medicine is a discipline that generates extraordinary possibly from the point of view of the interfaces NANO-BIO-INFO, COGNO which will contribute to individualized treatment of patients. For example regenerative medicine is very important the increased the surface area and quantum effect he greatest advantage of using nanotechnology in tissue engineering is that the novel properties of nanomaterials make the cell interaction and other cellular functions much more efficient than tradition but materials. These used guidance on the determination of potential health effects of nanomaterials used in medical devices (is Scientific Committee on Emerging and Newly Identified Health Risks SCENIHR), the thorough the relations for TC 210 and ISO TC 229 and IEC TC 113.

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