Preparation of Amla (Phyllanthus emblica) Powder Using Spray Drying Technique

Authors : Shubham Mandliya, Pooja Pandey, H. N. Mishra

Abstract : Amla (Phyllanthus emblica), a plant of Euphorbiaceous is widely distributed in subtropical and tropical areas of China, India, Indonesia, and Malaysia. Amla is very high in vitamin C content. Spray drying of fruit juices represents another alternative way to improve the physicochemical stability and increase their shelf life. Samples of amla powder were produced using the spray drying method to investigate the effect of inlet temperatures and maltodextrin levels. The spray dryer model used was a laboratory scale dryer and samples were run at different temperatures and concentrations. The response surface methodology (RSM) was used to optimize the spray-drying process for the development of amla powder. The resultant powders were then analyzed for vitamin C, moisture, solubility and dispersibility. The spray dried amla powder contains higher amounts of vitamin C when compared to commercial fruit juice powders. SEM analysis revealed that lower maltodextrin levels and higher inlet air temperatures resulted in smaller but smoother particles. At lower temperature, vitamin C content is high as compared to higher temperature. Spray drying is an effective as well as an economic method which can be commercially used for making powder rather than by tray or solar drying as more fraction is retained with less cost.

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Keywords : Amla powder, physiochemical properties, response surface methodology, spray drying

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