234/B/Poster

Effect of drying methods on antioxidant activity of fruits of *Syzygium cumini* (L.) and *Carissa carandas* (L.)

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Both *Syzygium cumini* (L.) and *Carissa carandas* (L.) fruits have attractive intense colours, characteristic flavors and functional properties. Incorporation of these properties into food products may impart an exotic value to them. However, due to high perishability and seasonality of these underutilized fruits, it is difficult to use them in food industry. Aim of the study is to evaluate the efficacy of different drying methods that can be used to preserve *S. cumini* and *C. carandas* in terms of antioxidant activity of dried fruits. *S. cumini* and *C. carandas* fruit pulps were dried using five drying methods namely sun drying (SD), dehumidified air drying (DAD), oven drying (OD at 40 °C and 60 °C), vacuum drying (VD) and freeze drying (FD). Antioxidant activity of fruits were measured using 2, 2-diphenyl-2-picryl-hydrazyl free radical scavenging activity (DPPH) and Ferric reducing antioxidant power (FRAP) assays. DPPH radical scavenging activity % was significantly different ($p < 0.05$) among the drying methods for *S. cumini* but *C. carandas* did not exhibit a significant difference ($p > 0.05$) with drying methods. Both *S. cumini* and *C. carandas* fruits exhibit the same pattern to five drying methods and each method showed a significant variation in FRAP value ($p< 0.05$). Highest DPPH radical scavenging activity % and FRAP value retention was observed in VD and lowest in SD in both fruits. Results revealed that, drying for a long period declines the antioxidant activity more than high temperature drying methods. Long time drying may cause for oxidation or degradation of polyphenols and anthocyanins, thereby reducing the antioxidant activity. Therefore, it is important to reduce drying time to minimize loss of antioxidant activity. Hence, vacuum drying was selected as the best drying method to preserve the antioxidant potential of *S. cumini* and *C. carandas* fruits.

Keywords: *Syzygium cumini, Carissa carandas,* drying methods, vacuum oven drying

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