

ANTIOXIDATIVE AND ANTIMICROBIAL
ACTIVITY OF EXTRACT AND OIL FROM
PUMPKIN SEED

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ABSTRACT

Pumpkin seed oil (PSO) and pumpkin seed extract (PSE) contain polyphenol compounds that responsible for the antioxidant and antimicrobial activity of PSO and PSE. The objective of this research is to investigate the antioxidant activity of PSO and PSE during accelerated storage at 65°C for five days. Storage at 65°C for one day is same as storage for one month at ambient temperature. 200ppm α -tocopherol, 5% PSO and 1500ppm PSE are incorporated into sunflower oil (SFO), respectively. The antimicrobial properties of PSO and PSE towards bacteria and fungi were also studied. Peroxide value (PV), p-Anisidine value (p-AnV), total oxidation (totox) value, total phenolic content (TPC) and free fatty acid (FFA) were assays used to investigate the oxidative stability PSO and PSE. Disk diffusion and minimum inhibitory concentration (MIC) were applied to determine the ability of PSO and PSE to inhibit pathogenic bacteria and fungi growth. The PV, p-AnV and totox value of control SFO, SFO- α -tocopherol, SFO-5% PSO and SFO-1500ppm PSE were significantly different ($P < 0.05$) when compared day 5 to day 0. SFO-1500ppm PSE demonstrated the lowest increased in PV among tested samples. The PV of SFO- α -tocopherol and SFO-5% PSO were significant ($P < 0.05$) higher than SFO-1500ppm PSE. The p-AnV was the highest for SFO- α -tocopherol but SFO-1500 ppm PSE showed the lowest p-AnV after storage for 5 days at 65°C. There was significant ($P < 0.05$) difference when compared the control with SFO- α -tocopherol on day 3. The totox value of SFO- α -tocopherol and SFO-5% PSO was significantly ($P < 0.05$) higher than SFO-1500ppm PSE on day 5. On day 5, TPC of control and SFO- α -tocopherol showed significant ($P < 0.05$) differences. SFO-5% PSO was significant ($P < 0.05$) higher in FFA compared to control-SFO, SFO- α -tocopherol and SFO-1500ppm PSE on day 1, day 3 and day 5. In disk diffusion test, PSO exhibited inhibition against *Salmonella paratyphi*. The minimum amount required to inhibit growth of *Salmonella paratyphi* was 100mg/ml. However, both PSO and PSE were inhibited against *Bacillus cereus* at a minimum concentration of 100mg/ml and 50mg/ml, respectively. As a conclusion, PSE was the most effective antioxidant. Both PSO and PSE demonstrated antimicrobial activity.