COMBINED EFFECT OF NATURAL LEMON ESSENTIAL OIL AND LEMON JUICE PRESERVATIVES ON PEAR AND RASPBERRY MILKSHAKES

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As the importance of reducing food waste and sustainability in the food systems grows, natural food preservatives have gained more popularity to use in food preservation method. Essential oils (EOs) have a great potential to be a safe and environmentally friendly preservative due to their beneficial properties such as antimicrobial, antifungal and antioxidant. This study aims to examine the antimicrobial efficacy of combined pasteurized lemon juice and lemon essential oil as a natural preservative on pear and raspberry milkshake. The sensory evaluation was conducted in order to determine the most acceptable milkshake ratio and further used to investigate the shelf life. The milkshakes were prepared in different milk and fruit juice ratio as 60:40, 70:30 and 80:20 for the sensory evaluation. To evaluate the preservation effect of natural preservative, different treatments which were 1% pasteurized lemon juice, 0.25 µl/ml lemon essential oil and combined 1% pasteurized lemon juice and 0.25 µl/ml lemon essential oil were applied. The milkshakes were then stored under refrigerator condition for four weeks with the assessment of microbiological evaluation every week. The sensory evaluation demonstrated that the milkshake ratio 80:20 and 70:30 are the most preferable to consume for pear and raspberry milkshake, respectively. Moreover, the results indicated that the combination of 1% pasteurized lemon juice and 0.25 µl/ml lemon essential oil as a natural preservative, showed synergistic effects in the inhibition of microbial growth in pear and raspberry milkshakes during the storage.