



رقم البحث: (الثالث)

عنوانه الإنجليزي: Efficacy of Essential Oils (Thyme and Laurel) on Maintaining the Quality Indices and Nutritional Value of the Frozen Tilapia (*Oreochromis niloticus*) Fillets

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The effectiveness of essential oils (thyme and laurel) (EOs, 1%) on the quality indices and nutritional value of tilapia (*Oreochromis niloticus*) fillets stored at -18°C for 6 months was investigated. Total volatile basic nitrogen (TVB-N), trimethylamine nitrogen (TMA-N), thiobarbituric acid (TBA), pH, amino acids, and total bacterial count (TBC) analyses were carried out every two months. During the frozen storage of fish samples (6 months), the values of TVB-N, TMA-N, TBA, pH and TBC recorded a gradual increase. Until the end of the storage, these values were lower in samples treated with Eos, compared to those in the control, and they were less than the permissible limits. Compared to the control and until the end of the storage period, high nutritional quality was detected in the frozen fish fillets treated with Eos, especially those treated with thyme, followed by laurel and associated with a high value of total amino acids (TAAs), total essential amino acids (TEAAs), amino acid index (AAI) and biological value (BV%). Thus, the potential of EOs to inhibit the biochemical changes in fish samples during frozen storage and maintain their quality was remarkable. Therefore, some essential oils (EOs) are recommended to be used, especially thyme followed by laurel, as antioxidant and antimicrobial agents to improve fish fillets' quality during a long-term freezing process.