電子高壓靜電誘導裝置貯藏對吳郭魚鮮度與品質之影響

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摘 要

本研究以鮮活吳郭魚為材料，重擊犧牲後以完整全魚和經三片取肉、絞細、分裝後之絞肉兩種形態，分別置於附有電子高壓誘導靜電裝置(electrostatic field induced device; EFID)之 4℃ 冷藏庫(E group)及控制同溫之一般冷藏庫(R group)，比較兩方式貯藏期間魚體外觀與魚肉鮮度品質之變化。所得結果如下： 1. 全魚在貯藏期間，僵直期後魚體色澤逐漸呈現褐色，氨臭味亦增加，眼部則呈現混濁現象，達相同劣化程度之時間，R 組約四天，E 組則可延至六天。 2. 貯藏期間魚肉因糖解作用 pH 呈現先降後升的趨勢，R 組與 E 組分別在第六天及第七天時，降至最低後上升。 3. 魚肉 VBN 含量及 K 值均隨貯藏時間的延長而增加，R 組與 E 組分別在第六天及第十天時 VBN 含量超過衛生署所訂之標準；K 值方面，R 組第四天為 71.62%，E 組至第七天方為 61.70%，顯示 EFID 具延緩魚肉生化品質劣化之作用。 4. 貯藏期間魚肉色澤變化，R 組與 E 組魚肉之 Hunter L 值變化不大；但 a 值及 b 值皆隨著貯藏時間的增加而呈現上升的趨勢，R 組上升速率較 E 組快。 5. 總生菌數方面，R 組貯藏至第六天時，總生菌數達 3.04×106 CFU/g meat，已超過衛生署所訂衛生標準，而 E 組至第八天僅為 2.4×105 CFU/g meat，顯示 EFID 抑菌之效果。 6. 肌肉保水力方面，兩組保水力皆隨著貯藏時間的增加而下降。E 組下降速率較 R 組緩慢。 7. 魚肉肌動凝蛋白 Ca-ATPase 活性均隨貯藏時間延長而下降，R 組至第六天活性為 0.401 μmol Pi/min × mg protein，E 組至第八天活性方為 0.417 μmol Pi/min × mg protein。 8. 魚肉鹽溶性及水溶性蛋白溶解度在貯藏前期呈下降現象，但 R 組與 E 組分別在第四天及第五天時，降至最低後再上升，此應與蛋白質裂解、變性有關。 9. 貯藏魚肉經加鹽、擂潰、加熱製成煉製品，兩組之凝膠強度因酵素作用呈現先減後增的趨勢；而熱凝膠之色澤變化則與絞肉之結果相似。 10. EFID 對吳郭魚貯藏期間鮮度與品質之保持，無論生化學、微生物指標及肌肉特性的改變均有顯著正面影響，綜合言之，EFID 約可延長 20~30% 的保鮮期限。

關鍵詞 : 電子高壓靜電誘導裝置 ; 吳郭魚 ; 鮮度與品質

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