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*Electrical stunning of edible crabs (*Cancer pagurus*): from single experiments to commercial practice*

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Abstract

*To determine the optimal electrical stunning conditions for edible crabs (*Cancer pagurus*) their impedance was investigated along with currents with the potential to render the animal insensible within 1 s. This information was used to develop a commercial stunner and determine conditions that both stun and kill the animals instantaneously. Results show that the crabs' impedance is dependent on the current frequency with the optimum outcome seen at net frequencies of 50–60 Hz. The proportion of animals stunned was dependent on the potential difference with 220 V required to stun an animal unconscious within 1 s. Any attempts to kill the crab with asphyxia after a 10-s exposure to electricity failed as 30% of crabs recovered within an hour. A thermal shock, pre- or post-stunning prevented this recovery. Autotomy was not avoided and approximately 4–7% of crabs lost one or more appendage. Electricity caused localised over-heating, but a current of 10-s duration did not cause heating of the carapace. We conclude that electrical stunning used in combination with a thermal shock may stun and kill the animal instantaneously.*

Keywords: *animal welfare, crab, crustacean, electricity, slaughter, stunning*