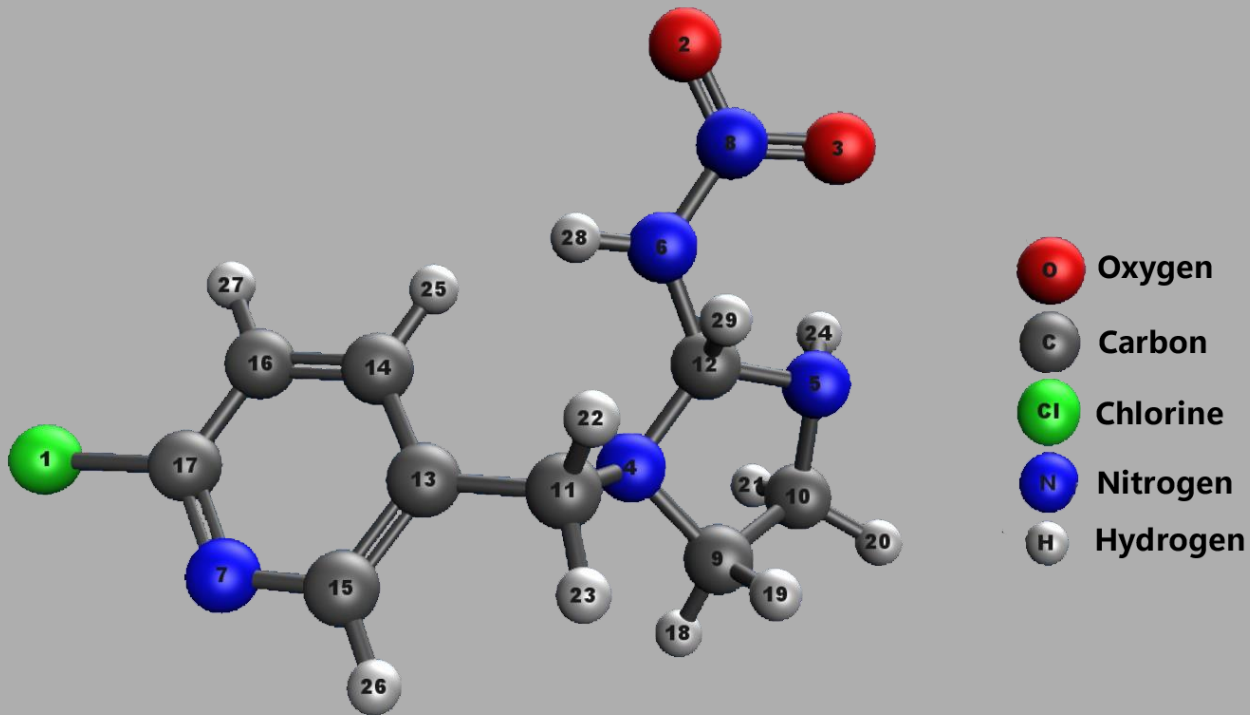


Degradation of Neonicotinoid Pesticide Imidacloprid by Electrocoagulation and Ultrasound



<https://www.nature.com/articles/s41598-024-59568-5>

Imidacloprid is still a widely used neonicotinoid insecticide, banned in many countries because of the associated environmental risks. Due to the inefficiency of conventional wastewater treatments for pesticide removal, new treatment methods are being investigated.

In this study the effects of electrode material, current density, ultrasound and operational time were investigated on the efficiency of imidacloprid removal from model solution by electrocoagulation.

The combination of aluminium electrodes and 20 A of applied current for 20 minutes resulted in total imidacloprid degradation. A simplified energy balance was introduced as a form of process evaluation. Combining ultrasound with EC resulted in higher efficiency than EC alone by 7 % to 12 %.