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Electrochemical Treatment of Anti-cancer Drug Carboplatin on Mixed-metal Oxides and Boron Doped Diamond Electrodes: Density Functional Theory Modelling and Toxicity Evaluation

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HIGHLIGHTS

- The electrooxidation of anti-cancer drug CrbPt by MMO and BDD electrodes has been studied.
- The most effective anode was found as Ti/RuO_2 with the complete degradation of CrbPt.
- The degradation of CrbPt significantly increased with increasing current density.
- DFT calculations show the formation of $[Pt(NH_3)_2\ (H_2O)_2]^{2+}$ and $[Pt(NH_3)_2\ (OH)_2]$.
- The results showed that Ti/RuO_2 anode provided zero toxicity at the end of the process.

Abstract