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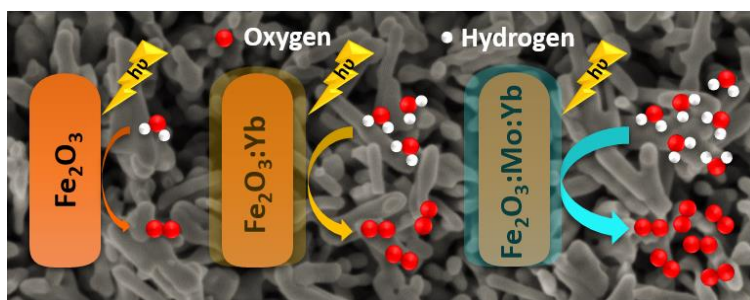
# Ytterbium modification of pristine and molybdenum-modified hematite electrodes as a strategy for efficient water splitting photoanodes

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## GRAPHICAL ABSTRACT



## HIGHLIGHTS

- **YTTERBIUM MODIFICATION OF HEMATITE ELECTRODES CAN BE ACHIEVED BY IMPREGNATION.**
- **YTTERBIUM MODIFICATION LEADS TO PASSIVATION OF HEMATITE SURFACE STATES.**
- **HEMATITE ELECTRODE PHOTOCURRENT IS ENHANCED BY A FACTOR OF UP TO 13 UPON YTTERBIUM MODIFICATION.**
- **THERE IS SYNERGY BETWEEN MOLYBDENUM AND YTTERBIUM AS HEMATITE ELECTRODE MODIFIERS.**

## Abstract

In recent years, the surface modification of photoanodes for photoelectrochemical water splitting with passivation overlayers has attracted considerable attention. In this respect, a novel, easy and simple methodology to introduce ytterbium oxide as an overlayer on hematite nanorod electrodes is reported in this work. The hematite electrodes were synthesized by means of a chemical bath method, while the ytterbium

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