



## Your browser is outdated

Update your browser to view ScienceDirect correctly.

Your technical details and browser version:

Request ID: 977f32b48cb9d17b-FRA

**IP:** 178.214.4.5

**UTC time:** 2025-08-31T20:15:07+00:00

**Browser:** Mozilla/5.0 (X11; Linux x86\_64) Miniature.io/6.0 AppleWebKit/537.36 (KHTML, like Gecko) QtWebEngine/5.12.4

Chrome/69.0.3497.128 Safari/537.36

