



MINISTRY OF EDUCATION, CULTURE, RESEARCH AND TECHNOLOGY
UNIVERSITAS NEGERI SEMARANG
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF INTEGRATED SCIENCES
IN COLLABORATION WITH PERKUMPULAN PENDIDIK IPA INDONESIA
JURNAL PENDIDIKAN IPA INDONESIA



p-ISSN: 2339-1286; e-ISSN: 2089-4392

Nationally Accredited Decree of The Minister of Education, Culture, Research and Technology No. 2/E/KPT/2015

SCOPUS INDEXED AND Q2 SCIMAGOJR

Secretariat: D5 Building, First Floor, UNNES Campus in Sekaran Gunungpati Semarang, Indonesia, Postal Code 50229.

Phone (+6224) 70805795, Fax. (+6224) 8508005, E-mail: jpii@mail.unnes.ac.id, Website: <http://journal.unnes.ac.id/nju/index.php/jpii>

DECLARATION OF ORIGINALITY JURNAL PENDIDIKAN IPA INDONESIA

We the undersigned declare that this manuscript is original, has not been published before and is not currently being considered for publication or submitted elsewhere.

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed. We further confirm that the order of authors listed in the manuscript has been approved by all of us.

We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing we confirm that we have followed the regulations of our institutions concerning intellectual property.

The first author,

Dr. Bahtiar, M.Pd.Si