

**PENGEMBANGAN BAHAN AJAR LARUTAN ELEKTROLIT DAN
NONELEKTROLIT BERBASIS KIMIA HIJAU UNTUK
MENINGKATKAN HASIL BELAJAR SISWA**

Oleh

Agung Dwi Ambika Desinta, NIM 1613031047

Program Studi Pendidikan Kimia

Jurusan Kimia

ABSTRAK

Penelitian ini bertujuan untuk menghasilkan bahan ajar larutan elektrolit dan nonelektrolit berbasis kimia hijau yang valid, praktis, dan efektif. Jenis penelitian ini adalah penelitian dan pengembangan menggunakan model ADDIE. Instrumen penelitian yang digunakan meliputi angket, lembar analisis dokumen, lembar validasi, lembar uji keterbacaan, lembar uji kepraktisan, tes hasil belajar, lembar penilaian afektif, dan lembar penilaian psikomotorik. Karakteristik bahan ajar meliputi (1) prinsip-prinsip kimia hijau yang diintegrasikan yang terdiri atas pencegahan, rancangan produk kimia yang lebih aman, dan kimia yang secara alami aman untuk mencegah kecelakaan; dan (2) komponen-komponen lain seperti info kimia, prinsip kimia hijau, serta deskripsi, bahaya, kegunaan, dan pencegahan/penanggulangan bahan kimia. Kevalidan bahan ajar meliputi (1) validasi ahli isi dan praktisi menghasilkan skor rata-rata sebesar 3,13 dengan kriteria valid; (2) validasi bahasa menghasilkan skor rata-rata sebesar 3,25 dengan kriteria valid; dan (3) validasi media menghasilkan skor rata-rata sebesar 3,52 dengan kriteria sangat valid. Hasil uji keterbacaan bahan ajar menunjukkan bahwa bahan ajar sudah dapat dipahami dengan baik oleh siswa. Kepraktisan bahan ajar yang dikembangkan telah memenuhi kriteria praktis. Keefektifan bahan ajar meliputi (1) hasil uji *n-gain* menunjukkan adanya peningkatan hasil belajar siswa pada ranah kognitif; (2) uji proposi satu sampel menghasilkan proporsi ketercapaian kriteria ketuntasan minimal klasikal pada ranah kognitif dan psikomotorik lebih dari 85%; dan (3) hasil penilaian afektif telah memenuhi kategori sangat baik. Berdasarkan hasil penelitian, bahan ajar berbasis kimia hijau yang dikembangkan dapat meningkatkan hasil belajar siswa.

Kata Kunci: bahan ajar, kimia hijau, larutan elektrolit dan nonelektorlit.

THE DEVELOPMENT OF A LEARNING MATERIAL OF GREEN CHEMISTRY-BASED ELECTROLYTE AND NONELECTROLYTE SOLUTION TO IMPROVE STUDENT'S LEARNING OUTCOMES

By:

Agung Dwi Ambika Desinta, NIM 1613031047

Chemistry Education Study Program

Chemistry Department

ABSTRACT

This study aimed to produce a valid, practical, and effective green chemistry-based electrolyte and non-electrolyte solution learning material. This type of study is research and development using the ADDIE model. The research instruments used included a questionnaire, a document analysis sheet, a validation sheet, a readability assessment sheet, a practicality assessment sheet, a learning achievement test, an attitude assessment sheet, and a psychomotor assessment sheet. The characteristics of learning materials included (1) the principles of green chemistry consisting of prevention, design of safer chemical products, and chemicals being naturally safe to prevent accidents; and (2) other components such as chemical information, green chemical principles, as well as descriptions, hazards, uses, and prevention/control of chemicals. The validity of learning material included (1) the validation of content experts and practitioners produced an average score of 3.13 with valid criteria; (2) the language validation produced an average score of 3.25 with valid criteria; and (3) the media validation produced an average score of 3.52 with very valid criteria. The results of the readability assessment of learning material showed that the learning material could be well understood by students. The practicality of the learning material met the practical criteria. The effectiveness of learning material included (1) results of the n-gain test indicated an increase in students' learning outcomes in the cognitive domain; (2) one sample proportion test resulted in the proportion of classical minimal mastery criteria in the cognitive and psychomotor domains being more than 85%; and (3) the results of attitude assessment fulfilled the category of very good. Based on the results, the green chemistry-based learning material developed could improve students' learning outcomes.

Keywords: learning material, green chemistry, electrolyte and nonelectrolyte solution.