

ABSTRAK

Penelitian ini bertujuan untuk menghasilkan bentuk desain praktikum nanoteknologi *Dye-Sensitized Solar Cells* (DSSC) berbasis inkuiri untuk mengembangkan kemampuan literasi sains. Desain penelitian yang digunakan adalah *Model of Educational Reconstruction* (MER), berupa (1) analisis struktur konten; (2) penelitian pada pengajaran dan pembelajaran; dan (3) pengembangan evaluasi pembelajaran. Jumlah partisipan dalam penelitian ini adalah 18 siswa di salah satu Sekolah Menengah Atas Negeri (SMAN) di Kota Banda Aceh. Instrumen yang digunakan yaitu tes kemampuan literasi sains, lembar observasi keterlaksanaan pembelajaran, dan angket tanggapan siswa. Berdasarkan hasil analisis pre-konsepsi siswa ditafsirkan bahwa siswa masih mengalami kesulitan dalam menjawab prinsip kerja sel surya dan DSSC serta struktur atau susunan DSSC. Prosedur praktikum pada buku kimia SMA saat ini hanya sebatas verifikasi konsep dan tidak mengintegrasikan kompetensi sains dengan teknologi terkini. Pengembangan LKPD didasari oleh hasil uji coba prosedur praktikum DSSC menggunakan kaca konduktif dari logam timah. Berdasarkan hasil revidi ahli, *draft* LKPD yang dikembangkan sangat layak dan dapat diimplementasikan dalam pembelajaran. Kemampuan literasi sains siswa mengalami peningkatan baik pada domain kompetensi proses, pengetahuan, maupun sikap sains. Akan tetapi, masih dalam kategori sedang. Hasil analisis angket tanggapan siswa menunjukkan respon positif terhadap implementasi praktikum nanoteknologi DSSC berbasis inkuiri. Dari hasil tersebut disimpulkan bahwa pengembangan desain praktikum nanoteknologi DSSC berbasis inkuiri dapat meningkatkan literasi sains siswa.

Kata Kunci : DSSC, inkuiri, literasi sains

ABSTRACT

This study aims to produce a design form of nanotechnology practicum inquiry-based Dye-Sensitized Solar Cells (DSSC) on scientific literacy ability. The research design was the Model of Educational Reconstruction (MER), i.e (1) analysis of content structure; (2) research on teaching and learning; and (3) development and evaluation of instruction. The number of participants were 18 students in one of the Senior High Schools among Banda Aceh. The instruments were scientific literacy abilities test, observation sheet of learning implementation, and student response questionnaires. Based on student conception analysis can be interpreted that students still have difficulties to answered the principles of solar cells and DSSC along DSSC stucture. The procedure practicum analysis in students' chemistry books were obtained that practicums exist are limited verification of concept and not integrate scientific competencies with the latest technology. The development of student worksheet based on the results of DSSC practicum procedure trial using the conductive glass from Stannum. Based on the expert review, draft of student worksheet that has been developed was very feasible and can be implemented in learning. Students' scientific literacy abilitiy has increased both in domains of competencies, knowledge, and attitudes. However, it's still in the medium category. The questionnaire results of student responses showed positive response to the practicum implementation inquiry-based DSSC. From these results, it can be concluded that the development of inquiry-based nanotechnology DSSC practicum design increased students' scientific literacy ability.

Keywords : DSSC, inquiry, scientific literacy