ABSTRACT

LKPD based on *Project Based Learning* (PjBL) is teaching material that conveying information through creating projects in solving problems in everyday life and emphasizes innovative learning. This type of research is *Research and Development* (R&D) and experimentation, using the 4-D model (*Define, Design, Development,* and *Dissiminate*) is carried out only until the *developmen*t stage. This research aims to produce LKPD based on *Project Based Learning* (PjBL) Biotechnology material for class XII SMA valid through antioxidant testing of robusta coffea leaf extract (*Coffea canephora*). Antioxidant are needed to prevent oxidative stress which plays an important role in the etiology of varous degenerative diseases. The human body can neutralize free radicals if the amount is not excessive, with endogenous antioxidant defense mechanisms. When endogenous antiozidants are insufficient, the body requires exogenous antioxidans. The antioxidant test was carried out using the method DPPH (*2,2-diphenyl-1picrihydrazyl*) was measured by UV-Vis Spectrophotometry at a wavelength of 517 nm with vitamin C comparator. Collection technique the data used are interviews and questionnaires, with research subjects being class XII students at Bina Jaya High School Palembang. This research uses Likert scale analysis techniques and analysis liniear regression equation. From the research results, it was concluded that LKPD based on *Project Based Learning* (PjBL) on valid biotechnology material seen from the results of material expert assessment with an average of 91,58%, linguists with an average of 96,7% and media experts with an average of 98,10%. Antioxidant results of robusta coffea leaf extract (*Coffea canephora*) shows an average IC_{50} value of 4,608 µg/mL with very strong category and the vitamin C comparison has an average IC_{50} value of 2,449 µg/mL in the very strong category.

Keywords: Biotechnology, DPPH, IC_{50}, LKPD based on *Project Based Learning* (PjBL), Robusta coffee leaf extract (*Coffea canephora*)