- Supplementary Material 1 shows polyphenol contents of extracts fermented by various strains. In this result, the extract fermented by *Monascus purpureus* had the highest polyphenol contents compared to other strains.



**Figure 1. Total phenolic contents of extract from *Artemisia argyi* H. under liquid-state fermention by various strains**. Data shown represent means ± SD (n=3). Statistical differences were represented using different small letters (𝑝< 0.05).

- Supplementary Material 2 shows antioxidant activity(ABTS radical scavenging activity) of extracts fermented by various strains. In this result, the extract fermented by *Monascus purpureus* had the best antioxidant activity compared to other strains.



**Figure 2. ABTS radical scavenging activity of extract from *Artemisia argyi* H. under liquid-state fermention by various strains**. Data shown represent means ± SD (n=3). Statistical differences were represented using different small letters (𝑝< 0.05).

- Supplementary Material 3 shows acetylcholinesterase inhibitory activity of extracts fermented by various strains. The AChE inhibition activity of extract fermented by *Lactobacillus brevis* was the highest compared to other strains, but there was no significant differences from the extract fermented by *Monascus purpureus*.Therefore, in our experiment, the extract fermented by *Monascus purpureus* was used to investigate.



**Figure 3. Effect of *Artemisia argyi* H. fermented by various strains on AChE activity compared with tacrine as positive control.** Data shown represent means ± SD (n=3). Statistical differences were represented using different small letters (𝑝< 0.05).