Read absorbance as activity, trends will be the same either way. Activity calculation just adds a unit.

In the graph above, you can see that the activity decreases with temperature from 10C to 20C. However, after that it starts increasing a little bit. Dr. DeBruyn mentioned that it could be because the microbes need to have more activity (breakdown of more substrate/food) for surviving at a lower temperature as conditions are not optimal for growth. At higher temperatures, since conditions are optimal, they probably don’t need as much to survive.

The interesting thing is that PLA PHA is a polyester for the most part so esterase breaks down that the best. “No mulch control” has the lowest activity which makes sense. Cellulose has mostly glycosidic bonds not ester bonds so its activity is less than PLA PHA and decreases with temperature. Similarly, BioAgri has starch with partial glycosidic bonds, so the lack of enough “accessible ester bonds” would mean lower esterase activity in those soils.

PLA PHA has the highest esterase activity among treatments, correlates with it also having a higher Q10 than other treatments, followed by cellulose (second highest Q10), then bioagri (third highest Q10), and then no mulch (lowest q10).