

Figure S1. FTIR spectrum of LDPE powder biodegradation by APCK5 after 180 days of incubation.

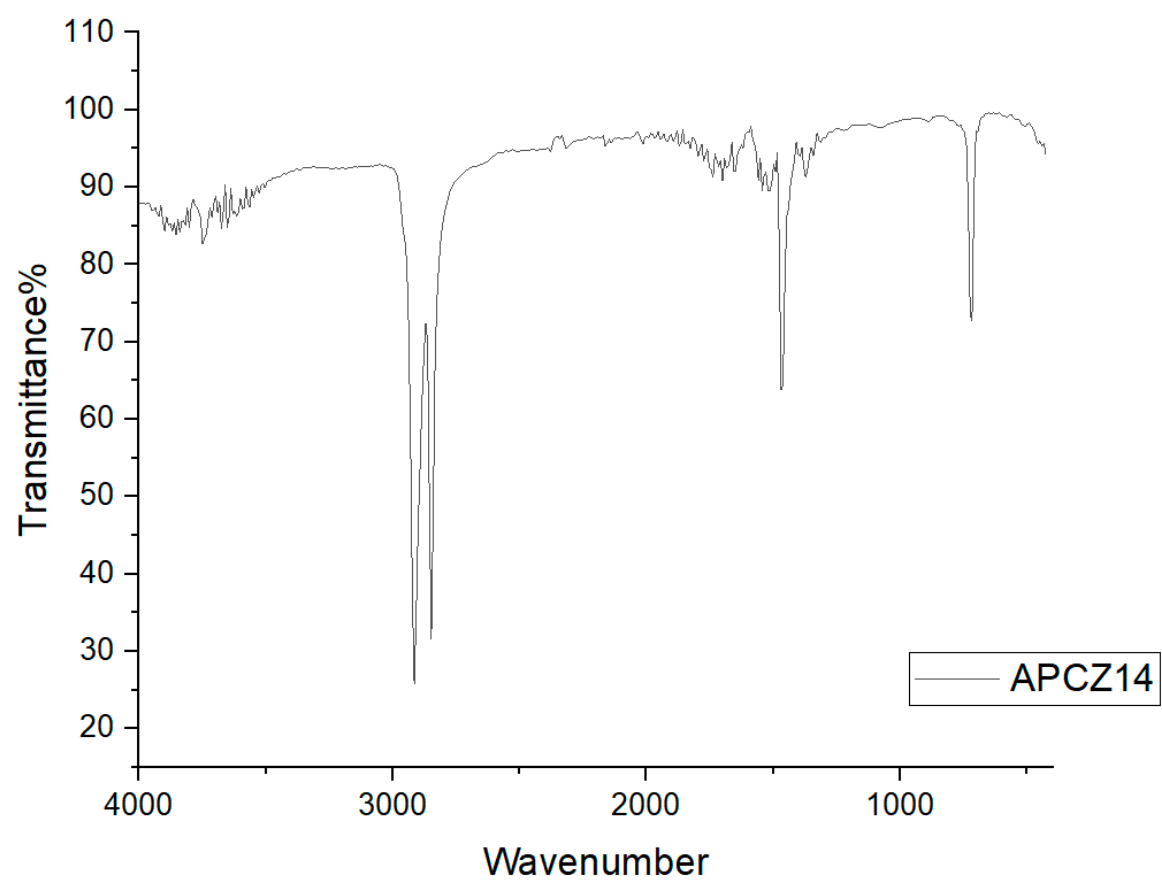


Figure S2. FTIR spectrum of LDPE powder biodegradation by APCZ14 after 180 days of incubation.

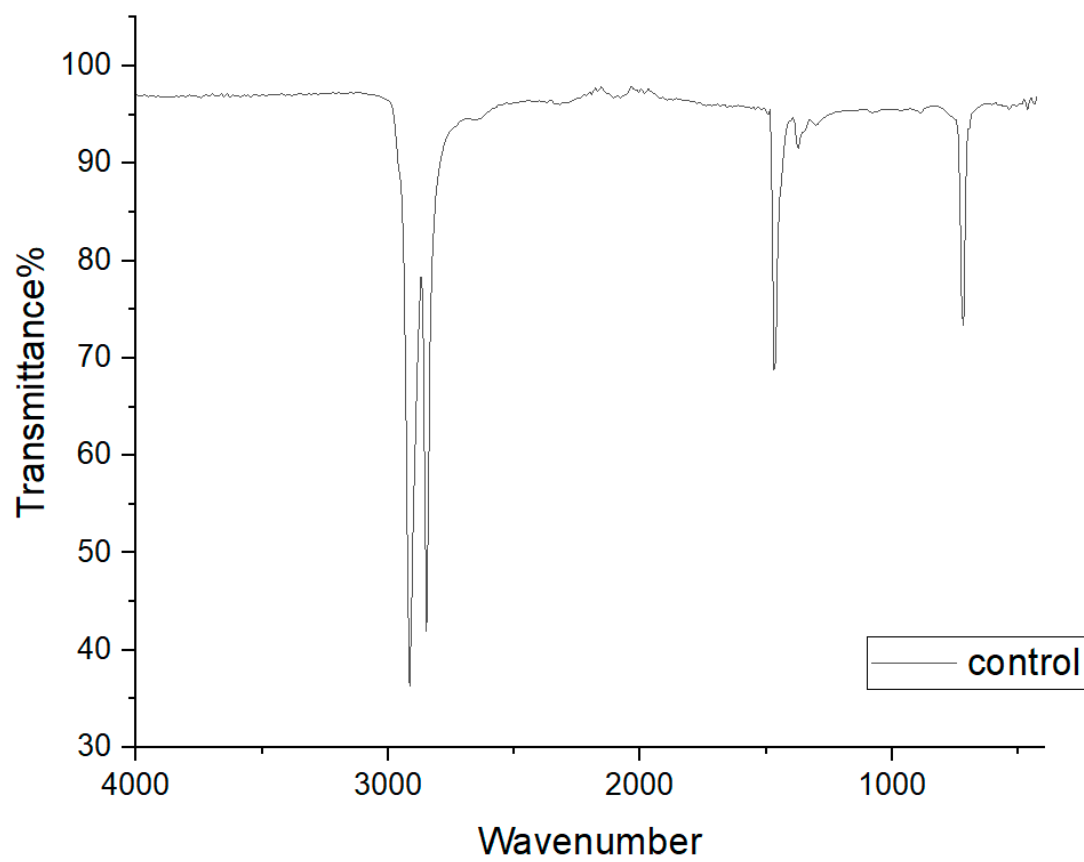


Figure S3. FTIR spectrum of LDPE powder at untreated control sample after 180 days of incubation.

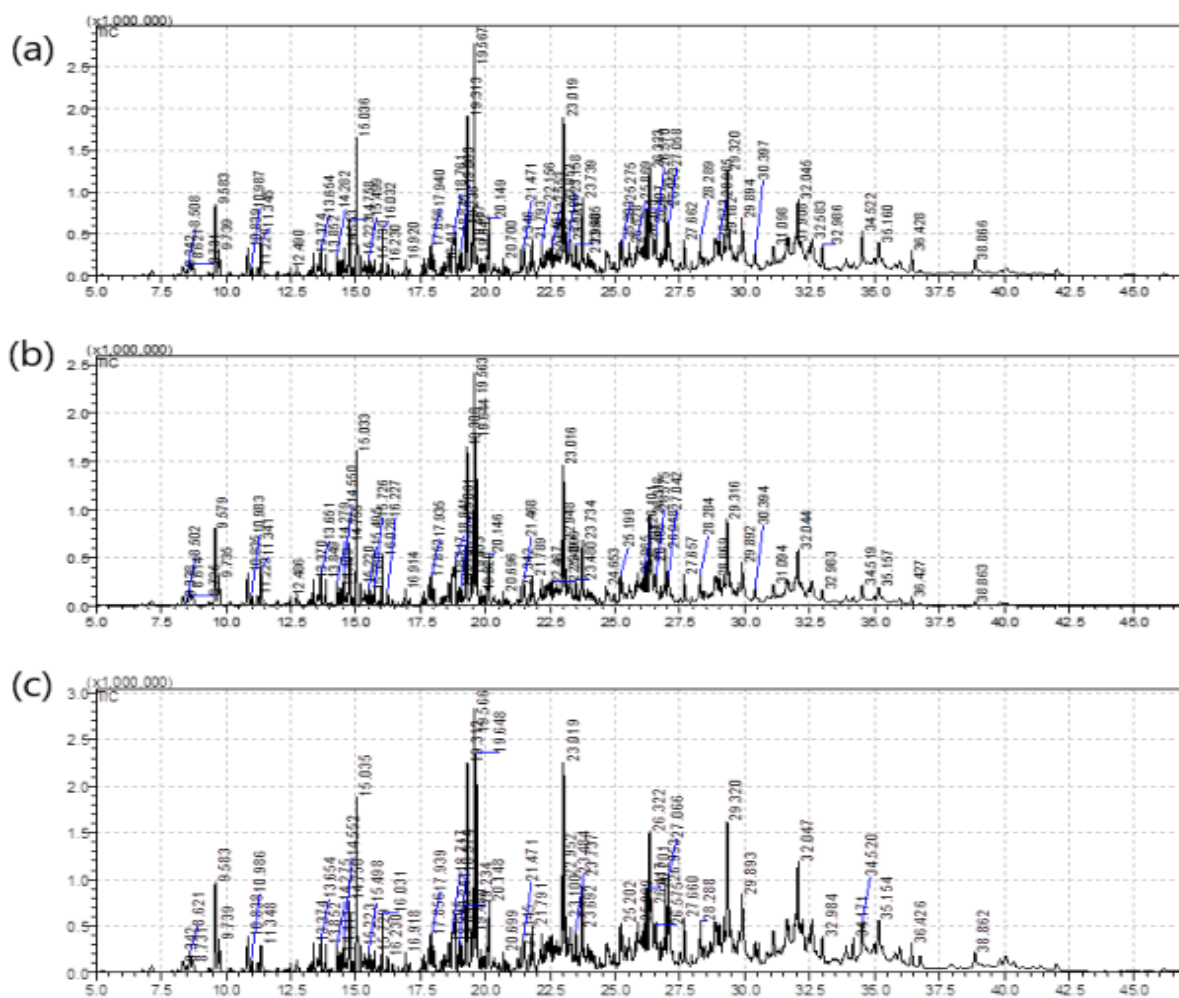


Figure S4. GC-MS of LDPE degradation products (a) control, (b) APCK5, and (c) APCZ14.

GCMS

APCK5 **APKZ14** control **APCK5+control** APCZ14+control **All**

Peak number	Compound Name	APCK5	APCZ14	Control
1	2,4-Dimethylhexane	√	√	√
2	4-Ethylheptane	√		√
3	3,3-Dimethyloctane	√	√	√
4	Cyclohexene, 1-methyl-4-(1-methylethenyl)-	√	√	√
5	5-Methylundecane	√	√	√
6	4,6-Dimethyldodecane	√	√	√
7	2,6,10-Trimethyldodecane	√	√	√
8	3,5,5-Trimethyl-2-cyclohexen-1-one	√	√	√
9	Tridecane	√	√	√
10	2-Methyldecane	√	√	√
11	4-Methyldodecane	√	√	√
12	Tetradecane	√	√	√
13	2,6,11-Trimethyldodecane	√	√	√
14	Pentadecane	√	√	√

15	Hexadecane	√	√	√
16	Heptadecane	√	√	√
17	Octadecane	√	√	√
18	Nonadecane	√	√	√
19	Eicosane	√	√	√
20	Heneicosane	√	√	√
21	2-Methyltridecane	√		√
22	Butylated Hydroxytoluene	√	√	√
23	Phenol, 2,4-bis-(1,1- dimethylethyl)	√	√	√
24	Hexadecane, 2,6,10,15-tetramethyl	√	√	√
25	Octacosane	√	√	√
26	Silane, trichlorooctadecyl-	√	√	√
27	Dotriacontane	√	√	√
28	n-Triacontane	√	√	√
29	Tetracontane	√	√	√
30	Tetratetracontane	√	√	√
31	Tetrapentacontane	√	√	√
32	Phthalic acid, ditridecyl ester		√	
33	1,2,3,4- Tetramethylbenzene	√		√
34	3-Methyldecane	√		√

35	Hexane, 3,3-dimethyl-	√		√
36	2-Butyl-1-octanol	√		√
37	1-Dodecanol	√	√	√
Unidentified compound		3	20	2