Name	Counterpart	Title
Anja Meryandini, Eka Putri	B02	Introduction of Actinomycetes from Bukit Duabelas Jambi in the coffee fermentation to increase the polyphenol extract

Background and Methodology

Coffee is a very popular beverage and is the second most important trading commodity in the world market after petroleum. Fresh coffee pulp is a potential source of two major anthocyanins, namely cyanidin-3-rutinosida and cyanidin-3-glucoside (Prata and Oliveira 2007, Esquivel et al. 2010). Microbes for coffee fruit fermentation as a culture starter are important to improve the fermentation, organoleptic and sensory qualities of coffee and shorten the processing time (Silva et al. 2013, Massawe & Lifa 2010). Actinomycetes are known as microbes that produce potential lignocellulolytic enzymes which can be used for coffee pulp fermentation.

Objectives

The aims of this research were to determine the role of microbes in increasing polyphenol extract and to determine the antioxidant activity.

Methodology

Fermentation of red coffee fruit from Pagar Alam, South Sumatra was done using 2 Streptomyces isolates (Xylanolytic and Cellulolytic) from Bukit Duabelas, Jambi, Sumatra. Antioxidant activity was measured.

Table 1. Source of Soil Samples

Isolates	Enzyme activity
P2b(b).3	xylanolytic
HJ4.5b	cellulolytic

Result

Coffee fruits for the cultivation of isolates were ground and pass 40 mesh sieves. Media used for isolates' cultivation was ISP Media with 1 % of coffee pulp powder.

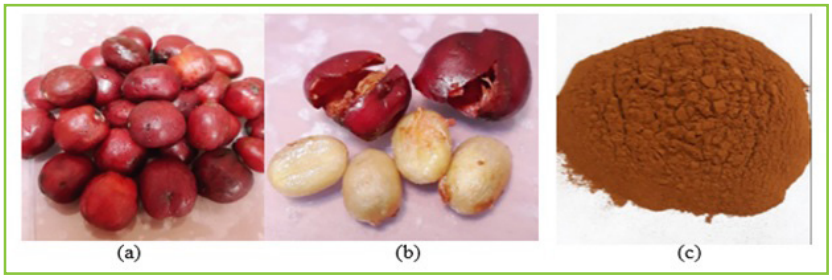

Figure 1. Coffee fruit (a) Coffee pulp (b) and powder from coffee pulp (c)

Table 2. Total fenolic acid in dry coffee skin after fermentation

Days of fermentation	Extract of coffee skin after fermentation					
	Using HJ4.5b isolate			Using P2b(b).3 isolate		
	Total fenolic acid (mgGAE/g)	%	Deviation standard	Total fenolic acid (mgGAE/g)	%	Deviation standard
0	258,84	25,88	1,27	332,00	33,20	4,45
1	371,01	37,10	3,50	439,29	43,93	7,54
2	556,98	55,70	0,37	660,53	66,05	6,90
6	761,54	76,15	0,74	868,83	86,88	7,74
9	632,61	63,26	0,74	907,00	90,70	1,27

Table 3. Total flavonoid content in dry coffee skin after fermentation

Days of fermentation	Extract of coffee skin after fermentation					
	Using isolate HJ4.5b			Using isolate P2b(b).3		
	total flavonoid (mgRE/g)	%	Deviation standard	total flavonoid (mgRE/g)	%	Deviation standard
0	204,167	20,417	4,124	226,786	22,679	7,143
1	248,214	24,821	6,186	527,976	52,798	2,062
2	302,976	30,298	4,124	602,976	60,298	2,062
6	324,405	32,440	2,062	763,690	76,369	2,062
9	349,405	34,940	5,455	897,024	89,702	8,248