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LAMPIRAN

Lampiran 1. Data roasting
Kontrol (E_0)

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (ºC)	BT(ºC)	ET (ºC)	BT(ºC)	ET (ºC)	BT(ºC)
00:00		215,60	180,50	221,10	180,00	206,50	181,00
00:15	00:12	211,50	167,00	219,00	159,50	205,60	166,50
00:30	00:27	204,60	126,10	214,50	124,00	200,60	125,10
00:45	00:42	200,50	106,00	211,50	106,50	198,50	105,00
01:00	00:57	197,10	99,00	208,60	101,10	196,50	97,00
01:15	01:12	215,60	180,50	206,60	101,50	194,50	97,00
01:30	01:27	211,50	167,00	205,50	105,10	193,10	100,00
01:45	01:42	204,60	126,10	204,10	110,60	192,60	105,00
02:00	01:57	200,50	106,00	203,10	116,50	192,10	111,00
02:15	02:12	197,10	99,00	203,00	123,10	192,60	117,00
02:30	02:27	194,60	97,60	201,60	128,60	192,10	123,00
02:45	02:42	192,60	100,60	200,60	134,60	193,50	128,60
03:00	02:57	191,10	105,50	198,60	140,10	194,00	134,60
03:15	03:12	190,60	111,60	199,50	145,50	195,50	140,50
03:30	03:27	190,00	117,60	198,60	150,00	196,10	145,00
03:45	03:42	190,10	123,60	198,60	154,50	196,10	149,60
04:00	03:57	191,00	129,50	198,00	158,60	197,50	154,00
04:15	04:12	191,10	134,60	198,00	162,50	198,50	158,00
04:30	04:27	192,00	139,50	198,10	166,00	198,50	162,00
04:45	04:42	193,00	144,10	199,10	169,10	200,00	165,50
05:00	04:57	193,50	149,00	199,00	171,60	201,10	168,60
05:15	05:12	194,10	153,00	199,10	175,00	202,50	172,00
05:30	05:27	194,60	157,00	199,10	177,00	203,10	175,00
05:45	05:42	195,10	160,50	200,00	179,60	204,60	177,60
06:00	05:57	196,50	163,10	200,50	182,60	205,10	180,60
06:15	06:12	197,00	166,10	200,00	185,00	206,50	183,50
06:30	06:27	197,10	169,10	201,00	186,60	206,50	186,10
06:45	06:42	198,10	172,10	201,60	189,60	208,00	188,50
07:00	06:57	199,50	175,50	202,10	191,50	208,10	191,00
07:15	07:12	199,50	177,10	202,60	193,50	209,50	193,60
07:30	07:27	200,10	179,10	203,50	195,60	210,60	195,60
07:45	07:42	201,60	182,10	203,10	198,10	210,50	198,50
08:00	07:57	202,60	184,50	204,00	200,10	212,10	200,60
08:15	08:12	203,60	186,60	204,60	202,50	212,50	203,00
08:30	08:27	203,50	189,10	205,10	204,00	212,50	204,60
08:45	08:42	204,60	191,10	205,50	205,50	212,60	206,50
09:00	08:57	212,50	203,50	206,00	207,00	213,10	207,50

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (°C)	BT(°C)	ET (°C)	BT(°C)	ET (°C)	BT(°C)
09:12	09:09	213,60	204,00	206,50	208,10	213,50	208,60
09:15	09:12			206,60	208,00	213,50	209,00
09:30	09:27			207,10	208,60	213,10	210,10
09:45	09:42			207,60	210,10	213,50	211,10
10:00	09:57			208,50	211,10	213,10	212,50
10:15	10:12			209,50	212,50	213,50	214,60
10:30	10:27			210,00	214,10	213,60	216,00
10:36	10:33			210,10	215,10	214,10	216,50
10:45	10:42					214,50	217,60
11:00	10:57					215,10	219,60
11:15	11:12					215,60	221,60
11:30	11:27					216,10	223,60
11:45	11:42					216,10	225,60
12:00	11:57					217,50	227,50
12:15	12:12					218,00	229,50
12:30	12:27					218,60	231,10

500 µg (E_1)

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (°C)	BT(°C)	ET (°C)	BT(°C)	ET (°C)	BT(°C)
00:00		216,60	181,50	222,80	181,70	204,00	176,50
00:15	00:12	212,30	168,30	220,70	161,20	201,10	162,00
00:30	00:27	205,90	127,40	216,40	125,30	196,00	120,60
00:45	00:42	201,80	107,20	213,20	108,10	193,90	100,50
01:00	00:57	198,40	100,30	210,10	102,80	192,00	92,50
01:15	01:12	195,70	98,30	208,30	103,10	190,00	92,50
01:30	01:27	193,90	101,80	207,10	106,80	188,60	95,50
01:45	01:42	192,20	106,70	205,80	112,30	188,00	100,50
02:00	01:57	191,70	112,80	204,90	118,20	187,60	106,50
02:15	02:12	191,20	118,90	204,50	123,80	188,00	112,50
02:30	02:27	191,00	124,70	203,30	130,30	187,60	118,60
02:45	02:42	192,00	130,60	202,30	136,10	189,00	124,10
03:00	02:57	192,20	135,80	201,10	141,80	189,50	130,00
03:15	03:12	193,10	140,90	201,20	147,20	191,00	136,10
03:30	03:27	194,10	145,10	200,30	151,30	191,60	140,50
03:45	03:42	194,40	150,20	200,30	156,20	192,60	145,10
04:00	03:57	195,00	154,50	199,80	161,00	193,00	149,50
04:15	04:12	195,70	158,10	199,80	164,20	194,00	153,60
04:30	04:27	196,40	161,60	199,80	167,70	194,10	157,50
04:45	04:42	197,40	164,70	200,80	170,80	195,50	161,20
05:00	04:57	197,90	167,40	200,70	173,30	197,00	164,10

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (°C)	BT(°C)	ET (°C)	BT(°C)	ET (°C)	BT(°C)
05:15	05:12	198,30	170,60	200,80	177,70	198,00	167,50
05:30	05:27	199,10	173,20	201,90	178,80	199,00	170,50
05:45	05:42	200,10	176,70	201,70	181,30	199,60	173,20
06:00	05:57	200,80	178,20	202,20	184,30	200,60	176,10
06:15	06:12	201,40	180,30	202,30	186,70	202,00	179,00
06:30	06:27	202,70	183,40	202,70	189,30	202,10	181,90
06:45	06:42	203,80	185,50	203,50	191,30	203,50	184,10
07:00	06:57	204,30	187,40	203,80	193,20	204,30	186,50
07:15	07:12	204,50	190,10	204,30	195,20	205,00	189,10
07:30	07:27	205,80	192,20	205,20	197,30	206,10	191,10
07:45	07:42	206,50	193,90	204,80	199,80	206,50	194,10
08:00	07:57	207,30	196,70	205,70	201,80	207,50	196,10
08:15	08:12	208,10	198,30	206,30	206,20	208,00	198,60
08:30	08:27	209,20	200,90	206,80	205,30	208,50	200,10
08:45	08:42	210,60	202,70	207,20	207,20	208,60	202,00
09:00	08:57	213,40	204,30	207,70	208,70	209,00	203,00
09:12	09:09	214,70	205,20	208,20	209,80	209,00	204,10
09:15	09:12			208,30	209,70	209,00	204,60
09:30	09:27			208,80	210,30	209,10	205,60
09:45	09:42			209,30	211,80	209,10	206,60
10:00	09:57			210,20	213,80	209,20	208,20
10:15	10:12			211,20	214,20	209,20	210,10
10:30	10:27			212,70	216,20	209,60	211,50
10:36	10:33			212,80	218,80	209,60	212,00
10:45	10:42					210,00	213,10
11:00	10:57					210,50	215,10
11:15	11:12					211,10	217,10
11:30	11:27					211,60	219,10
11:45	11:42					211,60	221,20
12:00	11:57					213,00	223,00
12:15	12:12					213,60	225,10
12:30	12:27					214,10	226,60

750 µg (E_2)

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (°C)	BT(°C)	ET (°C)	BT(°C)	ET (°C)	BT(°C)
00:00		214,00	178,90	219,00	179,90	202,20	176,70
00:15	00:12	209,30	165,20	217,90	157,40	201,10	162,30
00:30	00:27	203,20	124,40	213,30	123,90	196,30	120,30
00:45	00:42	199,00	104,80	209,40	106,40	194,20	100,60
01:00	00:57	195,10	97,70	206,50	100,90	192,20	92,40

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (℃)	BT(℃)	ET (℃)	BT(℃)	ET (℃)	BT(℃)
01:15	01:12	192,70	96,10	204,50	100,40	190,10	92,70
01:30	01:27	190,90	99,00	203,10	103,00	188,70	95,70
01:45	01:42	189,60	104,00	202,00	109,40	188,30	100,70
02:00	01:57	189,00	110,10	201,00	114,40	187,90	106,70
02:15	02:12	188,30	116,20	200,40	122,00	188,40	112,70
02:30	02:27	188,60	122,80	199,50	126,40	187,80	118,70
02:45	02:42	189,50	128,00	198,50	131,50	189,10	124,30
03:00	02:57	189,80	133,10	196,50	137,40	189,70	130,30
03:15	03:12	190,50	138,30	197,40	141,10	191,20	136,20
03:30	03:27	191,40	142,70	196,50	146,60	191,80	140,70
03:45	03:42	191,90	147,80	196,70	151,40	192,20	145,30
04:00	03:57	192,30	151,50	195,90	156,50	193,20	149,70
04:15	04:12	193,10	155,60	196,00	160,00	194,10	153,70
04:30	04:27	193,70	159,00	196,40	165,90	194,20	157,70
04:45	04:42	194,50	161,70	196,80	168,80	195,70	161,20
05:00	04:57	195,20	164,80	196,90	170,90	196,80	164,30
05:15	05:12	195,70	167,90	197,00	172,90	197,50	167,70
05:30	05:27	196,50	170,60	197,00	174,90	198,70	170,70
05:45	05:42	197,50	174,00	199,90	177,50	199,70	173,30
06:00	05:57	198,00	175,70	198,40	180,50	200,80	176,30
06:15	06:12	198,90	177,60	197,90	182,90	201,60	179,20
06:30	06:27	200,40	180,60	198,90	184,50	202,30	181,80
06:45	06:42	201,00	183,00	199,50	189,50	202,50	184,20
07:00	06:57	201,90	185,00	200,40	189,30	204,20	186,70
07:15	07:12	202,00	187,30	200,50	191,50	205,30	189,30
07:30	07:27	203,20	189,80	201,30	193,50	206,30	191,30
07:45	07:42	204,00	191,60	201,50	196,00	206,20	194,20
08:00	07:57	204,50	194,00	201,90	198,00	207,70	196,30
08:15	08:12	205,50	195,80	202,50	200,00	208,20	198,70
08:30	08:27	206,80	198,20	203,00	201,50	208,30	200,30
08:45	08:42	207,90	200,10	203,40	203,40	208,70	202,20
09:00	08:57	211,00	202,00	203,90	204,90	208,80	203,20
09:12	09:09	211,90	202,80	204,40	206,00	209,20	204,30
09:15	09:12			204,50	206,20	209,20	204,70
09:30	09:27			205,00	206,90	209,20	205,80
09:45	09:42			205,50	208,00	209,30	206,80
10:00	09:57			206,50	209,00	209,30	208,20
10:15	10:12			207,40	210,40	209,30	210,30
10:30	10:27			208,90	212,00	209,80	211,70
10:36	10:33			209,90	213,00	209,80	212,20
10:45	10:42					212,20	213,30

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (°C)	BT(°C)	ET (°C)	BT(°C)	ET (°C)	BT(°C)
11:00	10:57					210,80	215,30
11:15	11:12					211,10	217,30
11:30	11:27					211,70	219,30
11:45	11:42					211,80	221,30
12:00	11:57					213,20	223,20
12:15	12:12					213,40	225,20
12:30	12:27					214,30	226,80

1000 µg (E$_3$)

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (°C)	BT(°C)	ET (°C)	BT(°C)	ET (°C)	BT(°C)
00:00		212,50	177,40	226,10	183,00	199,50	174,00
00:15	00:12	208,90	163,30	221,90	164,50	198,70	159,80
00:30	00:27	201,40	123,20	217,50	127,00	193,90	118,50
00:45	00:42	197,70	103,00	214,50	109,50	191,10	98,90
01:00	00:57	194,10	95,80	211,60	104,10	189,60	90,10
01:15	01:12	191,70	94,20	209,50	104,50	187,50	90,00
01:30	01:27	189,60	97,80	208,50	108,10	186,10	93,00
01:45	01:42	188,10	102,50	207,10	113,60	185,50	98,00
02:00	01:57	187,60	108,70	206,10	119,50	185,10	104,10
02:15	02:12	187,00	114,70	206,00	126,10	185,00	110,10
02:30	02:27	187,30	120,90	204,60	131,60	185,50	115,90
02:45	02:42	188,00	126,20	203,60	137,60	186,50	121,70
03:00	02:57	188,10	131,60	201,60	143,10	187,10	127,70
03:15	03:12	189,00	136,20	202,60	148,50	188,50	133,50
03:30	03:27	190,00	142,00	201,60	155,00	189,10	138,10
03:45	03:42	190,10	146,00	201,50	157,50	189,50	142,60
04:00	03:57	191,20	149,70	201,00	161,60	190,10	147,20
04:15	04:12	191,60	154,00	201,00	165,50	191,10	151,00
04:30	04:27	192,20	157,60	201,10	169,00	191,60	155,10
04:45	04:42	193,60	160,50	202,10	172,10	193,00	158,60
05:00	04:57	193,90	163,20	202,00	174,60	194,10	161,60
05:15	05:12	212,50	177,40	202,10	178,00	195,00	165,00
05:30	05:27	194,20	166,70	202,50	180,40	196,10	168,00
05:45	05:42	195,00	169,20	203,00	183,60	197,60	170,70
06:00	05:57	196,00	172,50	203,50	185,60	198,10	173,60
06:15	06:12	196,50	174,20	203,00	188,00	199,50	176,50
06:30	06:27	197,10	176,10	204,00	189,60	199,60	179,10
06:45	06:42	198,80	179,30	204,60	192,60	201,00	181,50
07:00	06:57	199,70	181,50	205,10	194,50	201,50	184,00
07:15	07:12	200,40	183,50	205,60	196,50	202,60	186,60

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (℃)	BT(℃)	ET (℃)	BT(℃)	ET (℃)	BT(℃)
07:30	07:27	200,40	185,80	206,10	198,60	203,60	188,60
07:45	07:42	201,70	188,20	206,30	201,10	204,00	191,60
08:00	07:57	202,50	189,60	207,10	203,10	205,10	193,60
08:15	08:12	203,20	192,80	209,60	204,50	205,50	196,00
08:30	08:27	204,00	194,30	208,10	206,40	205,50	197,70
08:45	08:42	205,20	196,70	208,50	208,50	205,60	199,50
09:00	08:57	206,00	198,70	209,00	210,00	206,60	200,60
09:12	09:09	209,40	200,20	209,50	211,00	206,80	201,60
09:15	09:12			209,60	211,00	206,80	202,10
09:30	09:27			210,10	212,10	206,10	203,10
09:45	09:42			210,60	213,10	206,50	204,10
10:00	09:57			211,90	214,40	206,10	205,50
10:15	10:12			214,50	215,50	206,50	207,60
10:30	10:27			213,00	217,10	206,60	209,10
10:36	10:33			213,10	218,10	207,10	209,50
10:45	10:42					207,50	210,60
11:00	10:57					208,10	212,60
11:15	11:12					208,60	214,60
11:30	11:27					209,10	216,60
11:45	11:42					209,10	218,60
12:00	11:57					210,50	220,50
12:15	12:12					211,00	222,60
12:30	12:27					211,60	224,10

1250 µg (E4)

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (℃)	BT(℃)	ET (℃)	BT(℃)	ET (℃)	BT(℃)
00:00		217,80	182,70	207,80	170,70	204,30	178,80
00:15	00:12	213,80	169,30	205,70	146,10	203,50	164,50
00:30	00:27	206,90	128,90	201,20	110,70	198,50	123,00
00:45	00:42	202,20	108,10	198,20	93,10	196,30	102,90
01:00	00:57	199,40	101,10	195,30	87,80	194,30	94,80
01:15	01:12	196,50	99,40	193,30	88,20	192,30	94,80
01:30	01:27	194,60	102,90	192,20	91,80	190,80	97,90
01:45	01:42	193,20	107,80	190,80	97,30	190,40	102,80
02:00	01:57	192,70	113,60	189,80	103,20	189,90	108,80
02:15	02:12	192,30	119,70	189,70	109,80	190,40	114,90
02:30	02:27	192,50	125,90	188,30	115,30	190,00	120,90
02:45	02:42	193,30	131,60	187,30	121,30	191,30	126,50
03:00	02:57	193,50	136,50	185,30	126,80	191,80	132,50
03:15	03:12	194,30	141,80	186,20	132,20	193,30	138,30

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (°C)	BT(°C)	ET (°C)	BT(°C)	ET (°C)	BT(°C)
03:30	03:27	195,30	146,80	185,30	136,70	193,90	142,90
03:45	03:42	195,70	151,10	185,30	141,20	194,40	147,50
04:00	03:57	196,10	155,30	184,70	145,30	194,90	152,00
04:15	04:12	196,90	159,30	184,70	149,20	195,90	155,80
04:30	04:27	197,30	162,90	184,90	152,70	196,30	159,90
04:45	04:42	198,50	165,50	185,80	155,80	197,80	163,80
05:00	04:57	199,30	168,50	185,70	159,30	198,90	166,40
05:15	05:12	199,40	171,40	185,80	161,70	199,80	169,90
05:30	05:27	200,30	174,50	186,30	163,70	200,80	172,80
05:45	05:42	201,80	177,90	186,70	166,30	202,40	175,90
06:00	05:57	201,90	179,50	187,20	169,30	202,90	178,60
06:15	06:12	202,40	181,40	187,70	171,70	204,20	181,50
06:30	06:27	203,90	184,50	188,30	173,30	204,50	183,90
06:45	06:42	204,90	186,80	188,50	176,30	205,80	186,20
07:00	06:57	205,70	188,80	189,20	178,20	206,30	188,90
07:15	07:12	205,70	191,20	189,30	180,20	207,30	191,10
07:30	07:27	206,90	193,40	190,20	182,30	208,40	193,40
07:45	07:42	207,80	194,90	189,90	184,80	208,30	196,30
08:00	07:57	208,30	197,80	190,70	186,80	209,90	198,50
08:15	08:12	209,20	199,50	191,30	189,20	210,30	200,90
08:30	08:27	210,50	201,90	191,80	190,70	210,20	202,40
08:45	08:42	211,30	203,90	192,20	192,20	210,50	204,30
09:00	08:57	214,80	205,70	192,70	193,70	210,90	205,30
09:12	09:09	215,40	206,70	193,20	194,80	211,30	206,40
09:15	09:12			193,30	194,90	211,30	206,80
09:30	09:27			193,80	195,50	210,90	207,90
09:45	09:42			194,30	196,80	211,30	208,90
10:00	09:57			195,20	197,90	210,90	210,30
10:15	10:12			196,20	199,20	211,30	212,40
10:30	10:27			196,70	200,80	211,40	213,80
10:36	10:33			196,80	201,80	211,80	214,50
10:45	10:42					212,30	215,40
11:00	10:57					212,90	217,40
11:15	11:12					213,40	219,70
11:30	11:27					213,90	221,40
11:45	11:42					213,90	223,40
12:00	11:57					215,30	225,30
12:15	12:12					215,80	227,30
12:30	12:27					216,40	228,90

1500 µg (E$_5$)

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (°C)	BT(°C)	ET (°C)	BT(°C)	ET (°C)	BT(°C)
00:00		214,20	179,10	218,80	179,70	203,90	178,40
00:15	00:12	210,10	165,80	217,80	157,20	202,80	165,20
00:30	00:27	203,10	124,10	214,10	121,70	198,00	122,40
00:45	00:42	197,00	104,30	209,20	104,20	195,80	102,30
01:00	00:57	195,90	97,90	206,30	98,80	193,80	94,80
01:15	01:12	193,30	96,10	204,30	99,20	191,70	94,40
01:30	01:27	191,10	99,10	203,20	102,80	190,50	97,50
01:45	01:42	189,70	104,60	201,80	108,30	190,00	102,60
02:00	01:57	189,10	110,30	200,80	114,20	189,40	108,40
02:15	02:12	188,30	116,60	200,70	120,80	190,00	114,50
02:30	02:27	188,80	122,50	199,30	126,30	189,60	120,60
02:45	02:42	189,90	128,20	198,30	132,30	190,90	126,00
03:00	02:57	189,70	133,30	197,30	137,80	191,40	132,00
03:15	03:12	190,60	138,20	197,20	143,20	192,50	137,90
03:30	03:27	191,20	142,80	196,30	147,70	193,40	142,60
03:45	03:42	192,10	147,80	196,30	152,20	193,90	147,70
04:00	03:57	192,60	151,90	195,70	156,90	194,40	151,40
04:15	04:12	193,50	155,80	195,60	160,20	195,50	155,40
04:30	04:27	193,80	159,50	195,80	163,60	195,90	159,40
04:45	04:42	195,00	161,80	196,80	166,70	197,40	162,90
05:00	04:57	195,60	164,90	196,70	169,30	198,50	166,00
05:15	05:12	195,80	167,80	196,80	173,70	199,20	169,40
05:30	05:27	196,70	170,80	196,80	174,70	200,50	172,40
05:45	05:42	198,00	174,50	197,70	177,30	202,00	175,10
06:00	05:57	198,10	175,80	198,20	180,30	202,50	178,30
06:15	06:12	198,90	177,90	198,20	182,70	203,20	180,90
06:30	06:27	200,30	180,80	198,70	185,30	204,00	183,50
06:45	06:42	201,30	183,20	199,30	187,30	205,00	185,90
07:00	06:57	202,10	185,10	199,80	189,20	205,50	188,40
07:15	07:12	202,12	187,80	200,30	191,20	207,10	191,00
07:30	07:27	203,20	189,70	201,20	193,30	208,00	193,00
07:45	07:42	204,10	191,10	201,20	195,80	208,40	195,50
08:00	07:57	205,10	194,20	201,70	198,80	209,50	198,20
08:15	08:12	205,70	195,80	202,30	199,20	209,90	200,40
08:30	08:27	206,80	198,30	202,80	201,70	210,20	202,00
08:45	08:42	207,70	200,20	203,20	203,20	210,40	203,90
09:00	08:57	211,20	202,40	203,80	204,00	210,90	204,90
09:12	09:09	212,70	202,90	204,20	205,80	210,90	206,00
09:15	09:12			204,30	205,90	210,90	206,40
09:30	09:27			204,80	207,30	210,90	207,50

Time 1	Time 2	Light Roasting		Medium Roasting		Dark Roasting	
		ET (℃)	BT(℃)	ET (℃)	BT(℃)	ET (℃)	BT(℃)
09:45	09:42			205,30	207,80	210,90	208,50
10:00	09:57			206,30	208,80	211,10	209,90
10:15	10:12			207,20	211,20	211,20	212,00
10:30	10:27			207,70	211,80	211,50	213,40
10:36	10:33			207,80	212,80	211,50	213,90
10:45	10:42					211,90	215,00
11:00	10:57					212,40	217,00
11:15	11:12					213,00	219,00
11:30	11:27					213,50	221,00
11:45	11:42					213,50	223,00
12:00	11:57					214,20	224,90
12:15	12:12					215,40	226,90
12:30	12:27					216,00	228,50

Lampiran 2. Dasar sampel

Sampel	Kadar air awal (%)	Berat awal (g)	Berat setelah inkubasi (g)	Kerapatan biji (g/mL)	Berat kopi setelah sangrai (g)	Persentase Pengurangan (%)
E_0S_1	11,4	250,06	241,22	0,6432	216,81	13,30
E_0S_2	11,4	250,03	240,66	0,6418	210,11	15,96
E_0S_3	11,4	250,07	241,79	0,6448	200,71	19,74
E_1S_1	11,4	250,00	238,36	0,6356	212,76	14,89
E_1S_2	11,3	250,19	237,44	0,6332	205,06	18,04
E_1S_3	11,4	250,09	237,30	0,6328	200,71	19,74
E_2S_1	11,4	250,07	238,97	0,6372	216,55	13,40
E_2S_2	11,3	250,09	236,42	0,6304	208,29	16,71
E_2S_3	11,4	250,16	236,93	0,6318	200,11	20,01
E_3S_1	11,4	250,01	238,74	0,6366	201,14	19,55
E_3S_2	11,4	250,08	237,24	0,6326	203,35	18,69
E_3S_3	11,4	250,15	236,80	0,6315	202,68	18,98
E_4S_1	11,4	250,05	237,59	0,6336	210,52	15,81
E_4S_2	11,4	250,11	237,28	0,6327	221,75	11,34
E_4S_3	11,4	250,13	239,28	0,6381	200,52	19,83
E_5S_1	11,4	250,09	239,80	0,6395	219,15	12,37
E_5S_2	11,4	250,46	237,97	0,6346	210,15	16,09
E_5S_3	11,4	250,12	238,90	0,6371	200,53	19,83

Kerapatan biji$= \dfrac{berat\ setelah\ inkubasi}{Volume\ setelah\ inkubasi}$

Kerapatan biji $E_0S_1 = \dfrac{250,06\ g}{375\ mL}$

Kerapatan biji $E_0S_1 = 0,6432$ g/mL

Persentase pengurangan$= \dfrac{Berat\ awal-berat\ akhir}{Berat\ awal} \times 100\%$

Persentase pengurangan $E_0S_1 = \dfrac{(250,06-216,8146)\ g}{250,06\ g} \times 100\%$

Persentase pengurangan $E_0S_1 = 13,30\%$

Lampiran 3. Kadar air

Sampel		Sangrai					
		Light (S_1)		Medium (S_2)		Dark (S_3)	
		I	II	I	II	I	II
E_0	B. sampel (g)	3,04	3,03	3,04	3,06	3,06	3,6
	Kadar air (%)	0,3	0,5	0,2	0,3	0,2	0,3
	$\overline{x}$ Kadar air (%)	0,4[c]		0,25[abc]		0,25[abc]	
	STDEV	0,14142		0,0707		0,0707	
	RSD (%)	0,3535		0,2828		0,2828	
E_1	B. sampel (g)	3,07	3,03	3,00	3,01	3,00	3,09
	Kadar air (%)	0,3	0,4	0,1	0,3	0,0	0,1
	$\overline{x}$ Kadar air (%)	0,35[bc]		0,2[abc]		0,05[a]	
	STDEV	0,0707		0,1414		0,0707	
	RSD (%)	0,4714		0,7071		1,4142	
E_2	B. sampel (g)	3,01	3,03	3,09	3,07	3,02	3,07
	Kadar air (%)	0,3	0,3	0,3	0,2	0,2	0,2
	$\overline{x}$ Kadar air (%)	0,3[abc]		0,25[abc]		0,2[abc]	
	STDEV	0,0707		0,0707		0	
	RSD (%)	0,2828		0,2828		0	
E_3	B. sampel (g)	3,00	3,09	3,02	3,04	3,09	3,06
	Kadar air (%)	0,3	0,3	0,1	0,1	0	0,2
	$\overline{x}$ Kadar air (%)	0,3[abc]		0,1[ab]		0,1[ab]	
	STDEV	0,0707		0		0,1414	
	RSD (%)	0,2828		0		1,4142	
E_4	B. sampel (g)	3,08	3,08	3,09	3,05	3,06	3,01
	Kadar air (%)	0,3	0,3	0,2	0,2	0,2	0,2
	$\overline{x}$ Kadar air (%)	0,3[abc]		0,2[abc]		0,2[abc]	
	STDEV	0,0707		0		0	
	RSD (%)	0,2828		0		0	
E_5	B. sampel (g)	3,00	3,04	3,00	3,10	3,02	3,03
	Kadar air (%)	0,3	0,3	0,1	0,3	0,1	0,1
	$\overline{x}$ Kadar air (%)	0,3[abc]		0,2[abc]		0,1[ab]	
	STDEV	0,1414		0,1414		0	
	RSD (%)	0,7071		0,7070		0	

Tests of Between-Subjects Effects

Dependent Variable:Kadar air

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	,303[a]	17	,018	3,050	,012
Intercept	1,822	1	1,822	312,429	,000
Sampel	,066	5	,013	2,257	,093
Sangrai	,195	2	,098	16,714	,000
Sampel * Sangrai	,042	10	,004	,714	,701
Error	,105	18	,006		
Total	2,230	36			
Corrected Total	,408	35			

R Squared = ,742 (Adjusted R Squared = ,499)

Perlakuan		Subset for alpha = 0.05	
	N	1	2
S3	12	,15	
S2	12	,20	
S1	12		,33
Sig,		,126	,1000

Means for gropus in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square (Error)=0,06

a.   Uses Harmonic Mean Sample Size= 12

b.   Alpha= 0,05

Lampiran 4. Kadar abu

Sampel		Sangrai					
		Light (S_1)		Medium (S_2)		Dark (S_3)	
		I	II	I	II	I	II
E_0	B. porselin awal (g)	48,0855	79,5229	85,7535	85,7285	72,4699	58,0362
	B. sampel (g)	2,9495	2,3531	2,4510	2,4029	2,4409	3,0250
	B. porselin akhir (g)	48,1918	79,6127	85,8602	85,8255	72,5771	58,1686
	Kadar abu (%)	3,60	3,82	4,35	4,04	4,39	4,38
	x̄ Kadar abu (%)	3,71		4,20		4,38	
	STDEV	0,0015		0,0022		0,0001	
	RSD (%)	0,0405		0,0534		0,0024	
E_1	B. porselin awal (g)	85,7568	58,0348	48,0838	48,1197	54,5832	48,0816
	B.sampel (g)	2,9636	2,3873	2,4115	2,2891	2,5120	3,0631
	B.porselin akhir (g)	85,8551	58,1335	48,1862	48,2148	54,6921	48,2199
	Kadar abu (%)	3,32	4,13	4,25	4,15	4,34	4,51
	x̄ Kadar abu (%)	3,73		4,20		4,43	
	STDEV	0,0058		0,0006		0,0013	
	RSD (%)	0,1552		0,0155		0,0287	
E_2	B.porselin awal (g)	34,6316	45,6822	34,6308	34,6415	52,9399	34,6316
	B.sampel (g)	2,9790	2,3845	2,3819	2,4124	2,5403	3,0906
	B.porselin akhir (g)	34,7461	45,7783	34,7367	34,7399	53,0549	34,7835
	Kadar abu (%)	3,84	4,03	4,45	4,08	4,53	4,91
	x̄ Kadar abu (%)	3,94		4,2625		4,72	
	STDEV	0,0013		0,0026		0,0027	
	RSD (%)	0,0335		0,0609		0,0581	
E_3	B.porselin awal (g)	38,1889	72,4723	38,1900	38,2166	79,5261	38,1856
	B.sampel (g)	2,8624	2,6002	2,4578	2,4654	2,4935	3,0204
	B. porselin akhir (g)	38,2989	72,5721	38,3014	38,3221	79,6403	38,3264
	Kadar abu (%)	3,84	3,84	4,53	4,28	4,58	4,66
	x̄ Kadar abu (%)	3,84		4,41		4,62	
	STDEV	0,0001		0,0018		0,0006	
	RSD (%)	0,0014		0,0407		0,0125	
E_4	B. porselin awal (g)	41,7732	52,9378	41,7741	41,7866	58,0332	41,7723
	B. sampel (g)	3,0424	2,4668	2,5274	2,3731	2,4614	2,9412
	B. porselin akhir (g)	41,9052	53,0332	41,888	41,8879	58,1477	41,9033
	Kadar abu (%)	4,34	3,87	4,51	4,27	4,65	4,45
	x̄ Kadar abu (%)	4,10		4,39		4,55	
	STDEV	0,0033		0,0017		0,0014	
	RSD (%)	0,0812		0,0383		0,0307	
E_5	B. porselin awal (g)	45,2882	54,5822	45,2877	45,3030	51,2242	45,2864
	B. sampel (g)	2,0091	2,4244	2,4130	2,4865	2,4647	3,0123
	B. porselin akhir (g)	45,3688	54,6840	45,3900	45,4082	51,3343	45,4181

Sampel		Sangrai					
		Light (S_1)		Medium (S_2)		Dark (S_3)	
		I	II	I	II	I	II
E_5	Kadar abu (%)	4,01	4,20	4,24	4,23	4,47	4,37
	x̄ Kadar abu (%)	4,11		4,24		4,42	
	STDEV	0,0013		0,0001		0,0007	
	RSD (%)	0,0322		0,0015		0,0152	

Kadar abu$= \frac{(Berat\ awal - berat\ akhir)}{Berat\ sampel} \times 100\%$

Kadar abu $E_0S_1 = \frac{(48,1918 - 48,0855)g}{2,9495\ g} \times 100\%$

Kadar abu $E_0S_1 = 3,60\%$

Tests of Between-Subjects Effects

Dependent Variable:Kadar abu

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2,899[a]	17	,171	3,819	,004
Intercept	645,675	1	645,675	14459,987	,000
Sampel	,325	5	,065	1,456	,253
Sangrai	2,324	2	1,162	26,026	,000
Sampel * Sangrai	,249	10	,025	,558	,826
Error	,804	18	,045		
Total	649,377	36			
Corrected Total	3,703	35			

a. R Squared = ,783 (Adjusted R Squared = ,578)

Duncan[a]

Perlakuan		Subset for alpha = 0.05		
	N	1	2	3
S1	12	3,90		
S2	12		4,28	
S3	12			4,52
Sig		1,000	1,000	1,000

Means for gropus in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square (Error)=0,045

a.   Uses Harmonic Mean Sample Size= 12

b.   Alpha= 0,05

Lampiran 5. Sari kopi

Sampel		Sangrai					
		Light (S_1)		Medium (S_2)		Dark (S_3)	
		I	II	I	II	I	II
E_0	B. porselin awal (g)	58,0407	50,5403	51,2257	45,9959	48,0796	45,4375
	B. sampel (g)	2,0082	2,2076	2,5078	2,2098	2,3565	2,3705
	B. porselin akhir (g)	58,1016	50,6008	51,2948	46,0559	48,1427	45,5013
	Sari kopi (%)	27,58	27,41	27,55	27,15	26,78	26,91
	x̄ Sari kopi (%)	27,4922[e]		27,3529[cde]		26,8456[abc]	
	STDEV	0,1228		0,2844		0,0970	
	RSD (%)	0,4468		1,0399		0,3613	
E_1	B. porselin awal (g)	58,0378	50,5429	45,4415	48,0774	45,9983	51,2278
	B. sampel (g)	2,0081	2,0034	2,1256	2,0572	2,8014	2,3260
	B. porselin akhir (g)	58,0934	50,5975	45,4993	48,1339	46,0742	51,2898
	Sari kopi (%)	27,69	27,25	27,19	27,46	27,19	27,46
	x̄ Sari kopi (%)	27,47		27,33		26,87	
	STDEV	0,3070		0,1925		0,3100	
	RSD (%)	1,1176		0,7043		1,1535	
E_2	B. porselin awal (g)	45,2712	34,6121	44,7790	51,2079	31,9035	38,1737
	B. sampel (g)	2,2388	2,0045	2,1944	2,1175	2,1174	2,8760
	B. porselin akhir (g)	45,3332	34,6668	44,8391	51,2658	31,9605	38,2508
	Sari kopi (%)	27,69	27,29	27,39	27,34	26,92	26,81
	x̄ Sari kopi (%)	27,49		27,37		26,86	
	STDEV	0,2862		0,0313		0,0790	
	RSD (%)	1,0412		0,1145		0,02941	
E_3	B. porselin awal (g)	50,4260	45,4377	50,0370	48,0722	45,9965	51,2259
	B. sampel (g)	2,0728	2,0715	2,0936	2,1564	2,428	2,8998
	B. porselin akhir (g)	50,5998	45,4944	58,0946	48,1309	46,0613	51,3041
	Sari kopi (%)	27,60	27,37	27,51	27,22	26,69	26,97
	x̄ Sari kopi (%)	27,48		27,37		26,83	
	STDEV	0,1584		0,2059		0,1971	
	RSD (%)	0,5765		0,7522		0,7347	
E_4	B. porselin awal (g)	51,2028	31,9015	44,7728	38,4895	58,0332	58,0374
	B. sampel (g)	2,1308	2,5890	2,4494	2,4501	2,3788	2,3662
	B. porselin akhir (g)	51,2618	31,9722	44,8394	38,5569	59,0967	58,1009
	Sari kopi (%)	27,69	27,31	27,19	27,51	26,69	26,84
	x̄ Sari kopi (%)	27,50		26,35		26,77	
	STDEV	0,2696		0,2254		0,1005	
	RSD (%)	0,9805		0,08241		0,3755	
E_5	B. porselin awal (g)	45,4494	50,5349	45,2715	34,6118	48,0852	45,2877
	B. sampel (g)	2,1449	2,5019	2,1476	2,2318	2,3822	2,5501
	B. porselin akhir (g)	45,5085	50,6036	45,3298	34,6735	48,1495	45,3557

Sampel		Sangrai					
		Light (S_1)		Medium (S_2)		Dark (S_3)	
		I	II	I	II	I	II
E_5	Sari kopi (%)	27,55	27,46	27,15	27,65	26,99	26,67
	x̄ Sari kopi (%)	27,51		27,40		26,83	
	STDEV	0,0669		0,3530		0,2307	
	RSD (%)	0,2432		1,2886		0,8598	

Sari Kopi = $\frac{w_1 \times 500}{w_2 \times 50} \times 100\%$

w_1 = berat ekstrak (berat porselen akhir – berat awal)

w_2 = berat sampel

Sari Kopi E_0S_1 = $\frac{(58,1016 - 58,0407) \times 500}{2,2082 \times 50} \times 100\%$

Sari Kopi E_0S_1 = 27,58%

Tests of Between-Subjects Effects

Dependent Variable:Sari kopi

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2,917a	17	,172	3,658	,005
Intercept	26689,545	1	26689,545	569074,892	,000
Sampel	,006	5	,001	,025	1,000
Sangrai	2,895	2	1,448	30,865	,000
Sampel * Sangrai	,016	10	,002	,033	1,000
Error	,844	18	,047		
Total	26693,306	36			
Corrected Total	3,761	35			

a. R Squared = ,895 (Adjusted R Squared = ,795)

Duncan[a]

Perlakuan		Subset for alpha = 0.05	
	N	1	2
S3	12	26,83	
S2	12		27,36
S1	12		27,49
Sig.		1,000	,157

Means for gropus in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square (Error)=0,047

a. Uses Harmonic Mean Sample Size= 12

b. Alpha= 0,05

Specialty Coffee Association
Arabica Cupping Form

Specialty
Coffee
Association

Name: _____

Date: _____

Table no: _____

Quality Scale

6.00 - GOOD	7.00 - VERY GOOD	8.00 - EXCELLENT	9.00 - OUTSTANDING
6.25	7.25	8.25	9.25
6.50	7.50	8.50	9.50
6.75	7.75	8.75	9.75

Sample No.

Roast Level of Sample

Fragrance/Aroma — Score — Dry / Break — Qualities

Flavor — Score

Aftertaste — Score

Acidity — Score — Intensity — High / Low

Body — Score — Level — Heavy / Thin

Uniformity — Score

Clean Cup — Score

Balance — Score

Sweetness — Score

Overall — Score

Defects (subtract) — Taint - 2 — Fault - 4 — # of cups × intensity =

Total Score

Final Score

Notes:

Sample No.

Roast Level of Sample

Fragrance/Aroma — Score — Dry / Break — Qualities

Flavor — Score

Aftertaste — Score

Acidity — Score — Intensity — High / Low

Body — Score — Level — Heavy / Thin

Uniformity — Score

Clean Cup — Score

Balance — Score

Sweetness — Score

Overall — Score

Defects (subtract) — Taint - 2 — Fault - 4 — # of cups × intensity =

Total Score

Final Score

Notes:

Sample No.

Roast Level of Sample

Fragrance/Aroma — Score — Dry / Break — Qualities

Flavor — Score

Aftertaste — Score

Acidity — Score — Intensity — High / Low

Body — Score — Level — Heavy / Thin

Uniformity — Score

Clean Cup — Score

Balance — Score

Sweetness — Score

Overall — Score

Defects (subtract) — Taint - 2 — Fault - 4 — # of cups × intensity =

Total Score

Final Score

Notes:

Lampiran 6. Cupping test

Sampel		Sangrai		
		Light (S_1)	Medium (S_2)	Dark (S_3)
E_0	Fragrance/aroma	7,2	7,0	7,4
	Flavor	6,75	6,75	6,2
	Aftertaste	6,75	6,50	6,2
	Acidity	7,25	7,21	6,0
	Body	6,75	7,0	9,8
	Uniformity	7,0	10	6,0
	Balance	7,0	6,75	6,0
	Clean cup	6,75	10	6
	Sweetness	6,75	8,0	0
	Overall	7,25	7,25	6,8
	Defects	-	-	-
	Total & final score	69,45	76,46	60,4
E_1	Fragrance/aroma	7,0	7,0	7,0
	Flavor	7,50	7,0	6,0
	Aftertaste	7,50	6,0	6,0
	Acidity	7,50	7,5	6,1
	Body	6,75	7	9,8
	Uniformity	7,0	10	6,0
	Balance	7,0	7	6,0
	Clean cup	7,0	10	6,0
	Sweetness	7,0	10	0
	Overall	7,0	7,5	6,2
	Defects	-	-	-
	Total & final score	71,25	79	59,1
E_2	Fragrance/aroma	7,0	7,0	7,0
	Flavor	7,0	6,75	6,0
	Aftertaste	6,75	7,75	6,2
	Acidity	7,50	7,50	6,0
	Body	6,75	6,75	9,0
	Uniformity	6,75	10	6,0
	Balance	6,75	7,0	6,0
	Clean cup	7,0	10	7,0
	Sweetness	7,0	10	0
	Overall	7,0	7,25	7,0
	Defects	-	-	-
	Total & final score	69,5	80	60,2

Sampel		Sangrai		
		Light (S$_1$)	Medium (S$_2$)	Dark (S$_3$)
E$_3$	Fragrance/aroma	6,50	7,8	7,1
	Flavor	6,75	6,0	6,0
	Aftertaste	6,75	7,0	6,0
	Acidity	7,25	6,0	6,4
	Body	7,0	7,0	8,9
	Uniformity	7,0	10	6,2
	Balance	7,0	6,0	6,2
	Clean cup	7,0	10	6,2
	Sweetness	6,75	8,0	6,2
	Overall	7,0	6,0	7,0
	Defects	-	-	-
	Total & final score	69	73,8	66,2
E$_4$	Fragrance/aroma	7,25	7,8	7,0
	Flavor	6,75	6,25	6,1
	Aftertaste	6,75	8,0	6,1
	Acidity	7,0	7,25	6,0
	Body	7,25	7,0	9,0
	Uniformity	7,0	10	6,0
	Balance	6,50	7,5	6,0
	Clean cup	6,25	10	6,0
	Sweetness	6,25	10	0
	Overall	6,50	7,5	6,8
	Defects	-	-	-
	Total & final score	67,5	81,3	59
E$_5$	Fragrance/aroma	6,75	7,6	7,0
	Flavor	6,75	7,5	6,0
	Aftertaste	6,75	7,5	6,0
	Acidity	7,0	7,5	6,0
	Body	7,50	7,5	9,8
	Uniformity	7,0	10	6,0
	Balance	7,0	8	6,0
	Clean cup	6,75	10	6,0
	Sweetness	6,75	10	0
	Overall	7,0	8	6,2
	Defects	-	-	-
	Total & final score	69,25	83,6	59

Lampiran 7. Kafein

Volume larutan standar (mL)	Luas area	Konsentrasi (%)
2	1213167	0,002
5	2660805	0,005
10	5713127	0,010
15	8512224	0,015
20	11545309	0,020

Sampel		Sangrai					
		Light (S_1)		Medium (S_2)		Dark (S_3)	
		I	II	I	II	I	II
E_0	Luas area	1565780	1565415	1489889	1475308	1424512	1379924
	K. Berdasarkan luas area ($\times 10^{-3}$%)	2,73634	2,73570	2,60372	2,57823	2,48946	2,41154
	Kafein (%)	1,37	1,37	1,30	1,29	1,24	1,21
	x̄ Kafein (%)	1,37		1,30		1,23	
	STDEV	0,0002		0,0090		0,0275	
	RSD (%)	0,016485		0,695423		2,248472	
E_1	Luas area	1572630	1519217	1468420	1452897	1376797	1352145
	K. Berdasarkan luas area ($\times 10^{-3}$%)	2,74831	2,65497	2,56620	2,53907	2,40608	2,36300
	Kafein (%)	1,37	1,33	1,28	1,27	1,20	1,18
	x̄ Kafein (%)	1,35		1,28		1,19	
	STDEV	0,0330		0,0096		0,0152	
	RSD (%)	2,443115		0,751471		1,277535	
E_2	Luas area	1542149	1510580	1464314	1444387	1357585	1308660
	K. Berdasarkan luas area ($\times 10^{-3}$%)	2,69505	2,63988	2,55902	2,52420	2,37250	2,28700
	Kafein (%)	1,35	1,32	1,28	1,26	1,19	1,14
	x̄ Kafein (%)	1,33		1,27		1,16	
	STDEV	0,0195		0,0123		0,0302	
	RSD (%)	1,462472		0,968853		2,595050	
E_3	Luas area	1533424	1505907	1463171	1444363	1357093	1228278
	K. Berdasarkan luas area ($\times 10^{-3}$%)	2,67980	2,63171	2,55702	2,52416	2,37164	2,14653
	Kafein (%)	1,34	1,32	1,28	1,26	1,19	1,07
	x̄ Kafein (%)	1,33		1,27		1,13	
	STDEV	0,0170		0,0116		0,0796	
	RSD (%)	1,280378		0,914814		7,046258	
E_4	Luas area	1527910	1503557	1460682	1437432	1356842	1226494
	K. Berdasarkan luas area ($\times 10^{-3}$ %)	2,67016	2,62760	2,55267	2,51204	2,37120	2,14341

Sampel		Sangrai					
		Light (S_1)		Medium (S_2)		Dark (S_3)	
		I	II	I	II	I	II
E_4	Kafein (%)	1,34	1,31	1,28	1,26	1,19	1,07
	x̄ Kafein (%)	1,32		1,27		1,13	
	STDEV	0,0150		0,0144		0,0805	
	RSD (%)	1,136095		1,134547		7,135731	
E_5	Luas area	1521190	1497571	1453293	1433508	1353687	1217907
	K. Berdasarkan luas area ($\times 10^{-3}$%)	2,65842	2,61714	2,53976	2,50519	2,36569	2,12840
	Kafein (%)	1,33	1,31	1,27	1,2	1,18	1,06
	x̄ Kafein (%)	1,32		1,26		1,12	
	STDEV	0,0146		0,0122		0,0839	
	RSD (%)	1,106491		0,969246		7,467039	

1. Kurva standar

    Kafein standar yang digunakan= 0,125 g

    Volume larutan standar= 250 Ml

$$Konsentari\ kafein\ standar = \frac{0,125\ g \times 8}{250\ mL \times 8} \rightarrow \frac{1\ g}{2000\ mL} \rightarrow 0,05\%$$

Pengenceran $V_1 \times M_1 = V_2 \times M_2$

$$Standar\ 1\ (2\ mL) \rightarrow 2\ mL \times 0,05\% = 50\ mL \times M_2$$

$$Standar\ 1\ (2\ mL) \rightarrow \frac{0,1\%}{50} = M_2$$

$$Standar\ 1\ (2\ mL) \rightarrow M_2 = 0,002\%$$

Standar 1 (2 Ml) = 0,002%

Standar 2 (5 Ml) = 0,005%

Standar 3 (10 Ml) = 0,010%

Standar 4 (15 Ml) = 0,015%

Standar 5 (20 Ml) = 0,020%

2. Kafein dari hasil regresi linear kurva standar

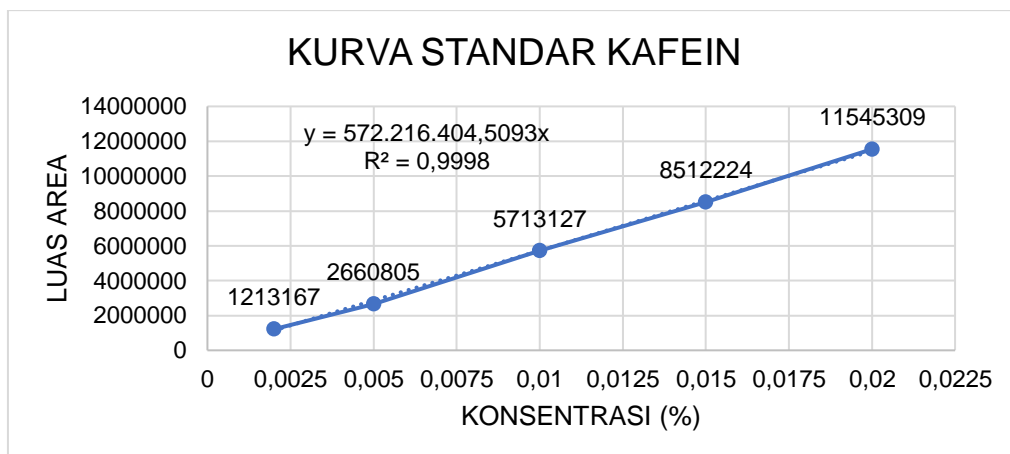   x= Konsentrasi standar kafein

    y= Luas area

$$y = ax \rightarrow y = 572215404,5093x$$

$$R^2 = 0,9998$$

$$x = \frac{Luas\ area\ sampel}{a} \rightarrow \frac{Luas\ area\ sampel}{572216404,5093}$$

Kafein $E_0S_1 = \frac{1565780}{572216404,5093}$

Kafein $E_0S_1 = 0,00273634$

KURVA STANDAR KAFEIN

3. Konsentrasi sampel

$$Konsentrasi\ sampel = \frac{1\ g}{100\ mL} = 1\%$$

Pengenceran $\rightarrow V_1 \times M_1 = V_2 \times M_2$

Pengenceran $\rightarrow 10\ mL \times 1\% = 50\ mL \times M_2$

Konsentrasi sampel $\rightarrow M_2 = \frac{10\%}{50} = 0{,}2\%$

4. Perbandingan konsentrasi sampel (lampiran 7.3) dengan kafein sampel yang didapatkan dari hasil perhitungan kurva standar (lampiran 7.2)

Konsentrasi sampel (lampiran 7.3) : Kafein yang didapatkan (lampiran 7.2)

0,2 % (bubuk kopi) : 0,00273634% (kafein)

0,2% × 500 (bubuk kopi) : 0,00273634% × 500 (kafein)

100% (bubuk kopi) : 1,37% (kafein)

Tests of Between-Subjects Effects

Dependent Variable:Kafein

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	,214[a]	17	,013	9,141	,000
Intercept	56,893	1	56,893	41330,511	,000
Sampel	,017	5	,003	2,450	,073
Sangrai	,192	2	,096	69,706	,000
Sampel * Sangrai	,005	10	,001	,374	,942
Error	,025	18	,001		
Total	57,132	36			
Corrected Total	,239	35			

a. R Squared = ,896 (Adjusted R Squared = ,798)

Duncan[a]

Perlakuan		Subset for alpha = 0.05		
	N	1	2	3
S3	12	1,16		
S2	12		1,27	
S1	12			1,34
Sig.		1,000	1,000	1,000

Means for gropus in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square (Error)=0,01

a.   Uses Harmonic Mean Sample Size= 12

b.   Alpha= 0,05

Lampiran 8. Akrilamida

Volume larutan standar (mL)	Absorbansi	Konsentrasi (%)
2,5	0,196	0,0025
5	0,345	0,0050
7,5	0,464	0,0075
10	0,618	0,0100
12,5	0,809	0,0125
15	0,967	0,0150

Sampel		Sangrai					
		Light (S_1)		Medium (S_2)		Dark (S_3)	
		I	II	I	II	I	II
E_0	Absorbansi	0,436	0,436	0,438	0,438	0,397	0,393
	K. Berdasarkan absorbansi (10^{-2}%)	0,6795	0,6795	0,6826	0,6826	0,6187	0,6125
	Akrilamida (%)	0,85	0,85	0,85	0,85	0,77	0,77
	x̄ Akrilamida (%)	0,85[l]		0,85[l]		0,77[h]	
	STDEV (×10^{-2})	0		0		0	
	RSD (%)	0		0		0	
E_1	Absorbansi	0,423	0,421	0,433	0,429	0,409	0,413
	K. Berdasarkan absorbansi (10^{-2}%)	0,6593	0,6561	0,6748	0,6686	0,6374	0,6437
	Akrilamida (%)	0,82	0,82	0,84	0,83	0,80	0,80
	x̄ Akrilamida (%)	0,82[j]		0,84[k]		0,80[i]	
	STDEV (×10^{-2})	0		0,5510		0	
	RSD (%)	0		0,6562		0	
E_2	Absorbansi	0,397	0,392	0,419	0,420	0,386	0,388
	K. Berdasarkan absorbansi (10^{-2}%)	0,6187	0,6109	0,6530	0,6546	0,6016	0,6047
	Akrilamida (%)	0,77	0,76	0,82	0,82	0,75	0,76
	x̄ Akrilamida (%)	0,77[h]		0,82[j]		0,75[g]	
	STDEV (×10^{-2})	0,6888		0		0,2755	
	RSD (%)	0,8962		0		0,3654	
E_3	Absorbansi	0,372	0,370	0,390	0,385	0,373	0,369
	K. Berdasarkan absorbansi (10^{-2}%)	0,5798	0,5767	0,6078	0,6000	0,5813	0,5751
	Akrilamida (%)	0,72	0,72	0,76	0,75	0,73	0,72
	x̄ Akrilamida (%)	0,72[e]		0,75[g]		0,72[e]	
	STDEV (×10^{-2})	0		0,6888		0,5510	
	RSD (%)	0		0,9124		0,7624	

	Sampel	Sangrai					
		Light (S₁)		Medium (S₂)		Dark (S₃)	
		I	II	I	II	I	II
E₄	Absorbansi	0,361	0,361	0,377	0,377	0,339	0,336
	K. Berdasarkan absorbansi (10^{-2}%)	0,5626	0,5626	0,5876	0,5876	0,5283	0,5237
	Akrilamida (%)	0,70	0,70	0,73	0,73	0,66	0,65
	x̄ Akrilamida (%)	0,7033[d]		0,7345[f]		0,66[a]	
	STDEV (×10^{-2})	0		0		0,4133	
	RSD (%)	0		0		0,6285	
E₅	Absorbansi	0,349	0,346	0,353	0,352	0,345	0,345
	K. Berdasarkan absorbansi (10^{-2}%)	0,5439	0,5393	0,5502	0,5486	0,5377	0,5377
	Akrilamida (%)	0,68	0,67	0,69	0,69	0,67	0,67
	x̄ Akrilamida (%)	0,68[b]		0,69[c]		0,67[b]	
	STDEV (×10^{-2})	0,4133		0		0	
	RSD (%)	0,6105		0		0	

1. Kurva standar

   Kafein standar yang digunakan= 0,1 g

   Volume larutan standar= 100 mL

   $$Konsentari\ akrilamida\ standar = \frac{0,1\ g}{100\ mL} \rightarrow 0,1\%$$

   Pengenceran $V_1 \times M_1 = V_2 \times M_2$

   $$Standar\ 1\ (2,5\ mL) \rightarrow 2,5\ mL \times 0,1\% = 100\ mL \times M_2$$

   $$Standar\ 1\ (2,5\ mL) \rightarrow \frac{0,25\%}{100} = V_2$$

   $$Standar\ 1\ (2,5\ mL) \rightarrow V_2 = 0,0025\%$$

   Standar 1 (2 mL) = 0,0025%

   Standar 2 (5 mL) = 0,0050%

   Standar 3 (7,5 mL) = 0,075%

   Standar 4 (10 mL) = 0,0100%

   Standar 5 (12,5 mL) = 0,0125%

   Standar 6 (15 mL) = 0,0150%

2. Kafein dari hasil regresi linear kurva standar
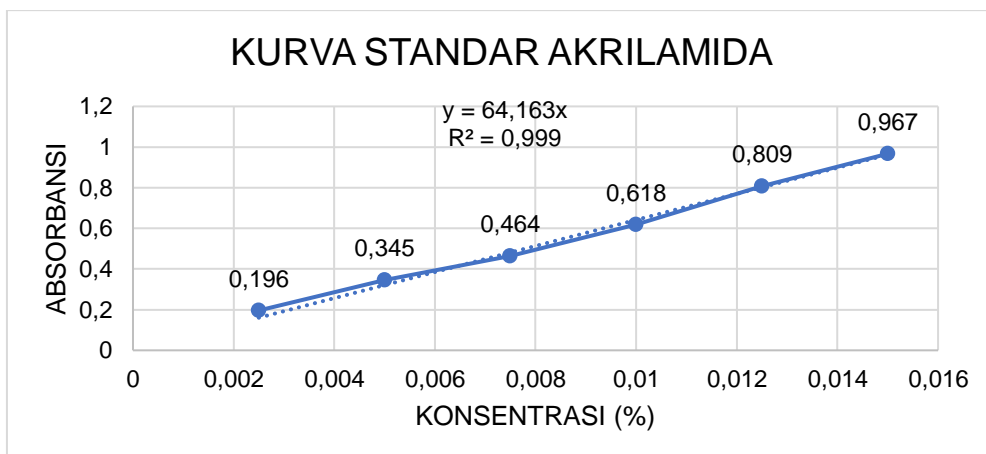
   x= Konsentrasi standar akrilamida

   y= Absorbansi

   $$y = ax \rightarrow y = 64,163$$
   $$R^2 = 0,9988$$
   $$x = \frac{Absorbansi}{a} \rightarrow \frac{Absorbansi}{64,163}$$

   Akrilamida $E_0S_1 = \frac{0,436}{64,163}$

   Akrilamida $E_0S_1 = 0,6795 \times 10^{-2}$ %

KURVA STANDAR AKRILAMIDA

y = 64,163x
R² = 0,999

Data points on curve: 0,196 | 0,345 | 0,464 | 0,618 | 0,809 | 0,967

Y-axis: ABSORBANSI (0, 0,2, 0,4, 0,6, 0,8, 1, 1,2)
X-axis: KONSENTRASI (%) (0, 0,002, 0,004, 0,006, 0,008, 0,01, 0,012, 0,014, 0,016)

3. Konsentrasi sampel

$$Konsentrasi\ sampel = \frac{1\ g}{5\ mL} = 20\%$$

Pengenceran → $V_1 \times M_1 = V_2 \times M_2$

Pengenceran → $1\ mL \times 20\% = 25\ mL \times M_2$

Konsentrasi sampel → $M_2 = \frac{20\%}{25} = 0,8\%$

4. Perbandingan konsentrasi sampel (lampiran 8.3) dengan akrilamida sampel yang didapatkan dari hasil perhitungan kurva standar (lampiran 8.2)

Konsentrasi sampel (lampiran 8.3) : Akrilamida yang didapatkan (lampiran 8.2)

0,8 % (bubuk kopi) : $0,6795 \times 10^{-2}$ % (akrilamida)

0,8% × 125 (bubuk kopi) : $0,6795 \times 10^{-2}$ % × 125 (akrilamida)

100% (bubuk kopi) : 0,8494% (akrilamida)

Tests of Between-Subjects Effects

Dependent Variable:Akrilamida

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	,138[a]	17	,008	526,525	,000
Intercept	20,569	1	20,569	1336335,787	,000
Sampel	,115	5	,023	1498,438	,000
Sangrai	,016	2	,008	520,459	,000
Sampel * Sangrai	,006	10	,001	41,782	,000
Error	,000	18	1,539E-5		
Total	20,707	36			
Corrected Total	,138	35			

a. R Squared = ,998 (Adjusted R Squared = ,996)

Duncan[a]

Perlakuan		Subset for alpha = 0.05											
	N	1	2	3	4	5	6	7	8	9	10	11	12
E4S3	2	,6575											
E5S3	2		,6721										
E5S1	2		,6770										
E5S2	2			,6867									
E4S1	2				,7033								
E3S1	2					,7228							
E3S3	2					,7228							
E4S2	2						,7345						
E2S3	2							,7539					
E3S2	2							,7549					
E2S1	2								,7686				
E0S3	2								,7695				
E1S3	2									,8007			
E2S2	2										,8173		
E1S1	2										,8221		
E1S2	2											,8397	
E0S1	2												,8494
E0S2	2												,8533
Sig.			1,000	,230	1,000	1,000	1,000	1,000	,807	,807	1,000	,230	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 2,000.

Lampiran 9. Dokumentasi Penelitian

Preparasi dan inkubasi green bean

Pengeringan

Kadar air setelah pengeringan

Penyangraian

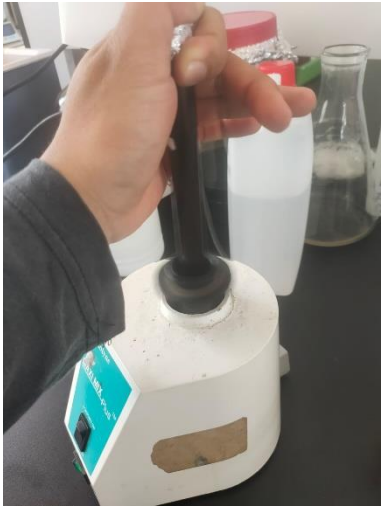Biji kopi setelah roasting

Kadar air sampel
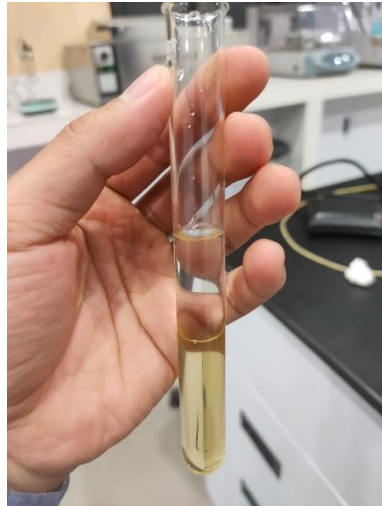

Kadar abu sampel

Sari kopi sampel

Cupping test

Kafein sampel

Akrilamida sampel

Akrilamida sampel

CURRICULUM VITAE

A. Data Pribadi

1. Nama : Aidil Zulhaq Paradiman
2. Tempat, tanggal lahir : Ujung Pandang, 13 April 1997
3. Alamat : Komp. Mangga Tiga Blok G3
No. 7, Makassar
4. Kewarganegaraan : Warga Negara Indonesia

B. Riwayat Pendidikan

1. Tamat SD tahun 2009 di SDN. Layang I Makassar
2. Tamat SMP tahun 2012 di SMPN. 5 Makassar
3. Tamat SLTA tahun 2015 di SMAN. 21 Makassar
4. Sarjana (D4) tahun 2021 di Politeknik Negeri Ujung Pandang

C. Riwayat Organisasi

1. Anggota Toyota Eco Youth SMAN. 21 Makassar tahun 2012/2013
2. Ketua Toyota Eco Youth SMAN. 21 Makassar Periode 2013/2014
3. Anggota Keluarga Muslim Politeknik Indonesia Periode 2016/2017

D. Karya Ilmiah yang Telah Dipublikasikan

1. Zulhaq Paradiman, A., Tahir, M. M., & Dirpan, A. (2024). Formation of Acrylamide Compounds in Food Products from Maillard Reactions: A Review Article. BIO Web of Conferences, 96, 01030. https://doi.org/10.1051/bioconf/20249601030
2. Jafar, I., Asfar, M., Mahendradatta, M., Paradiman, A. Z., & Iqbal, M. (2024). Fish Protein Hydrolysate Research Trends over the Last 5 Years and Future Research Predictions; a Bibliometric Analysis. International Journal of Peptide Research and Therapeutics, 30(3). https://doi.org/10.1007/s10989-024-10616-8