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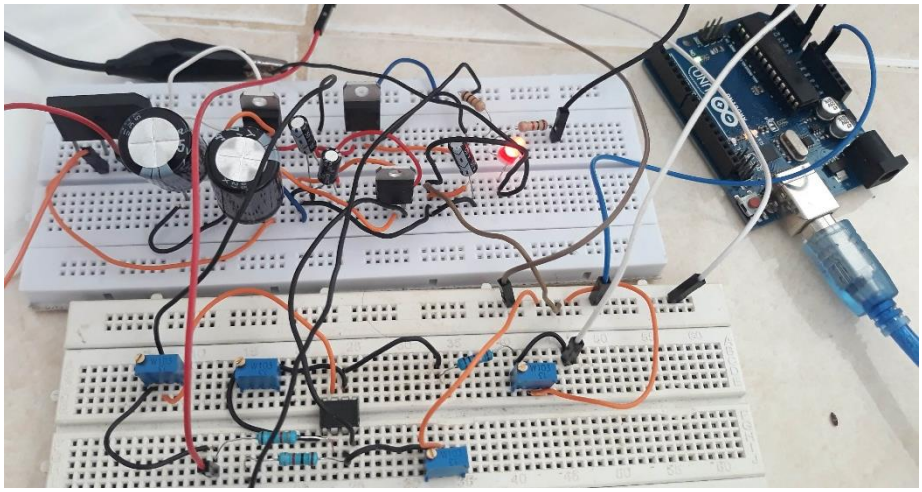
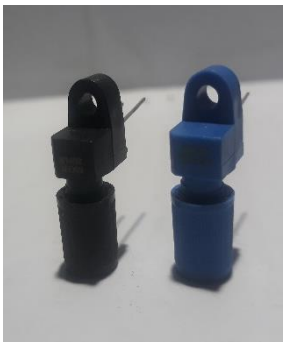
LAMPIRAN

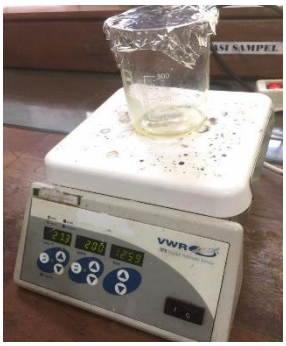
Lampiran 1. Alat dan bahan



Rangkaian catu daya, penguat selisih dan mikrokontroler Arduino UNO

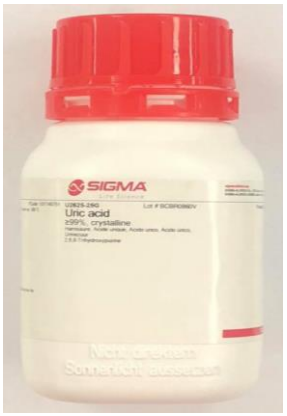


LED dan Fotodetektor

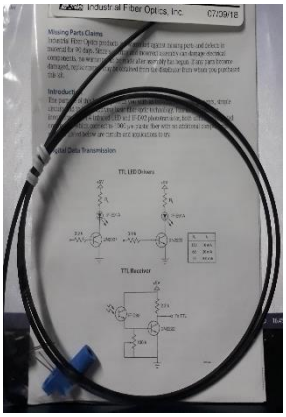


Magnetic Stirrer

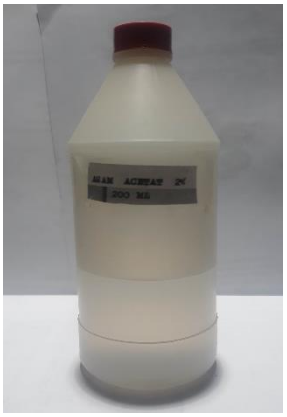
Wadah



Produk asam urat



Serat optik



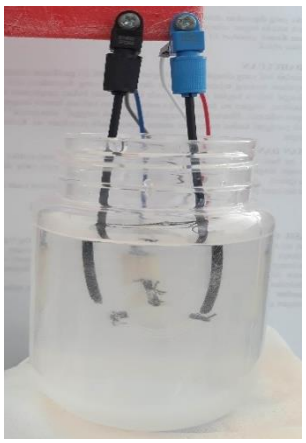
Asam asetat 2%

Lampiran 2. Konfigurasi sensor

Konfigurasi SPIRAL

Konfigurasi LOOP

Lampiran 3. Pengukuran kadar asam urat menggunakan sensor SOP



Sensor SOP dicelup dalam larutan

Penimbangan bahan asam urat

Dokumentasi pengujian sensor serat optik plastik

Lampiran 4. Data tegangan keluaran pada pengukuran kadar asam urat konfigurasi Loop tanpa selubung

Jumlah ppm asam urat	Vout (V)		
	Lilitan 2	Lilitan 4	Lilitan 6
0	3,715	3,182	2,445
50	3,538	3,101	2,439
100	3,497	2,980	2,289
150	3,444	2,966	2,288
200	3,441	2,942	2,278
250	3,424	2,870	2,097
300	3,247	2,670	2,092
350	3,209	2,639	1,869
400	3,056	2,543	1,862
450	3,034	2,542	1,814
500	3,037	2,499	1,761

Lampiran 5. Data tegangan keluaran pada pengukuran kadar asam urat konfigurasi Loop dengan selubung ZnO

Jumlah ppm asam urat	Vout (V)		
	Lilitan 2	Lilitan 4	Lilitan 6
0	3,478	3,020	2,275
50	3,466	2,962	2,260
100	3,444	2,952	2,256
150	3,425	2,879	2,197
200	3,360	2,806	2,171
250	3,205	2,733	2,061
300	3,056	2,619	1,922
350	3,030	2,399	1,729
400	2,892	2,324	1,631
450	2,778	2,310	1,609
500	2,774	2,309	1,559

Lampiran 6. Data tegangan keluaran pada pengukuran kadar asam urat konfigurasi Loop dengan pencacatan

Jumlah ppm asam urat	Vout (V)		
	Lilitan 2	Lilitan 4	Lilitan 6
0	2,522	2,180	1,785
50	2,464	2,166	1,781
100	2,434	2,113	1,739
150	2,376	1,895	1,702
200	2,346	1,890	1,574
250	2,305	1,732	1,504
300	2,230	1,728	1,338
350	1,996	1,696	1,201
400	1,904	1,545	1,123
450	1,850	1,418	1,069
500	1,754	1,405	1,006

Data tegangan keluaran konfigurasi Loop dengan pencacatan

Lampiran 7. Data tegangan keluaran pada pengukuran kadar asam urat konfigurasi Spiral tanpa selubung

Jumlah ppm asam urat	Vout (V)		
	Lilitan 2	Lilitan 4	Lilitan 6
0	3,286	2,685	2,146
50	3,245	2,663	2,123
100	3,247	2,468	1,940
150	3,122	2,398	1,884
200	3,001	2,373	1,846
250	2,971	2,326	1,767
300	2,889	2,287	1,712
350	2,857	2,253	1,578
400	2,830	2,096	1,598
450	2,760	1,989	1,461
500	2,598	1,993	1,431

Lampiran 8. Data tegangan keluaran pada pengukuran kadar asam urat konfigurasi Spiral dengan selubung ZnO

Jumlah ppm asam urat	Vout (V)		
	Lilitan 2	Lilitan 4	Lilitan 6
0	2,449	1,930	1,579
50	2,434	1,920	1,574
100	2,373	1,845	1,507
150	2,179	1,723	1,459
200	2,079	1,646	1,329
250	2,010	1,439	1,084
300	1,984	1,338	1,081
350	1,895	1,284	0,978
400	1,783	1,224	0,909
450	1,763	1,216	0,859
500	1,740	1,209	0,834

Lampiran 9. Data tegangan keluaran pada pengukuran kadar asam urat konfigurasi Spiral dengan pencacatan

Jumlah ppm asam urat	Vout (V)		
	Lilitan 2	Lilitan 4	Lilitan 6
0	2,119	1,726	1,224
50	2,011	1,717	1,215
100	1,971	1,637	1,111
150	1,776	1,478	1,084
200	1,769	1,452	1,068
250	1,733	1,434	0,928
300	1,586	1,375	0,818
350	1,575	1,298	0,755
400	1,551	1,187	0,662
450	1,453	1,024	0,530
500	1,343	0,944	0,441

Lampiran 10. Perhitungan kadar asam urat (mg/dl) untuk tiap konsentrasi larutan

Rumus Interpolasi $\boldsymbol{Y = Y_1 + \frac{(X - X_1)}{(X_2 - X_1)} (Y_2 - Y_1)}$

Data kadar asam urat terendah 2 mg/dl setara dengan 119 ppm dan tertinggi 7 mg/dl setara dengan 416 ppm.

1. Terendah X_1= 119 ppm, Y_1= 2 mg/dl; Tertinggi X_2= 416 ppm, Y_2= 7 mg/dl.
2. Untuk X = 150 ppm

   $Y = 2 + \frac{(150 - 119)}{(416 - 119)} (7 - 2)$ = 2,5 mg/dl.
3. Untuk X = 200 ppm ⟶ Maka; X_1= 150 ppm, Y_1= 2,5 mg/dl
   X_2= 416 ppm, Y_2= 7 mg/dl

   $Y = 2,5 + \frac{(200 - 150)}{(416 - 150)} (7 - 2,5)$

   = 3,3 mg/dl.
4. Untuk X = 250 ppm ⟶ Maka; X_1= 200 ppm, Y_1= 3,3 mg/dl
   X_2= 416 ppm, Y_2= 7 mg/dl

   $Y = 3,3 + \frac{(250 - 200)}{(416 - 200)} (7 - 3,3)$

   = 4,15 mg/dl.
5. Untuk X = 300 ppm ⟶ Maka; X_1= 250 ppm, Y_1= 4,15 mg/dl
   X_2= 416 ppm, Y_2= 7 mg/dl

   $Y = 4,15 + \frac{(300 - 250)}{(416 - 250)} (7 - 4,15)$

   = 5,01 mg/dl.
6. Untuk X = 350 ppm ⟶ Maka; X_1= 300 ppm, Y_1= 5,01 mg/dl
   X_2= 416 ppm, Y_2= 7 mg/dl

   $Y = 5,01 + \frac{(350 - 300)}{(416 - 300)} (7 - 5,01)$

   = 5,87 mg/dl.
7. Untuk X = 400 ppm ⟶ Maka; X_1= 350 ppm, Y_1= 5,87 mg/dl
   X_2= 416 ppm, Y_2= 7 mg/dl

   $Y = 5,87 + \frac{(400 - 350)}{(416 - 350)} (7 - 5,87)$ = 6,73 mg/dl.