Práctica 2: Cararterización potenciométrica de sistemas nivelados y no nivelados ácid-base. Graficas pH= f(V(agre.))

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Monitoreo potenciométrico durante la valoración de ácidos con NaOH, F= 0.1 mol/L.

	pH						
V[mL]	H_2O destilada	HCl	CH_3COOH	NH_4NO_3	HBCl	Fenol	$Cr_2O_7^{2-}$
0.0	5.50	1.61	3.10	6.21	3.90	6.66	4.96
0.5	11.60	1.67	3.69	8.64	5.08	9.27	5.69
1.0	12.20	1.72	4.00	8.98	5.41	9.75	5.97
1.5	12.40	1.81	4.18	9.27	5.62	10.09	6.15
2.0	12.50	1.95	4.38	9.54	5.84	10.34	6.36
2.5	12.70	2.10	4.59	9.76	6.05	10.55	6.77
3.0	12.80	2.37	4.74	10.02	6.30	10.79	6.87
3.5	12.90	3.70	4.96	10.29	6.58	11.06	7.03
4.0	12.90	11.33	5.25	10.73	7.17	11.39	7.31
4.5	12.98	11.96	5.91	11.44	11.25	11.83	7.82
5.0	13.04	12.26	10.85	11.99	11.90	12.40	10.43
5.5	13.09	12.41	11.76	12.32	12.24	12.36	11.28
6.0	13.10	12.55	12.13	12.49	12.42	12.49	11.92
6.5	13.17	12.64	12.34	12.64	12.56	12.62	12.22
7.0	13.19	12.75	12.49	12.73	12.66	12.70	12.42
7.5	13.20	12.84	12.59	12.83	12.70	12.77	12.54
8.0	13.23	12.89	12.70	12.91	12.83	12.84	12.65
8.5	13.25	12.94	12.77	12.96	12.86	12.90	12.73
9.0	13.28	12.98	12.86	13.01	12.95	12.95	12.74
9.5	13.31	13.03	12.93	13.04	12.97	12.99	12.86
10.0	13.40	13.07	13.00	13.09	13.06	13.03	12.99

Tabla 1: Valores experimentales del pH para cada volumen de NaOH agregado.

Procesamiento de datos: Construcción de las gráficas pH = f(Vagregado)

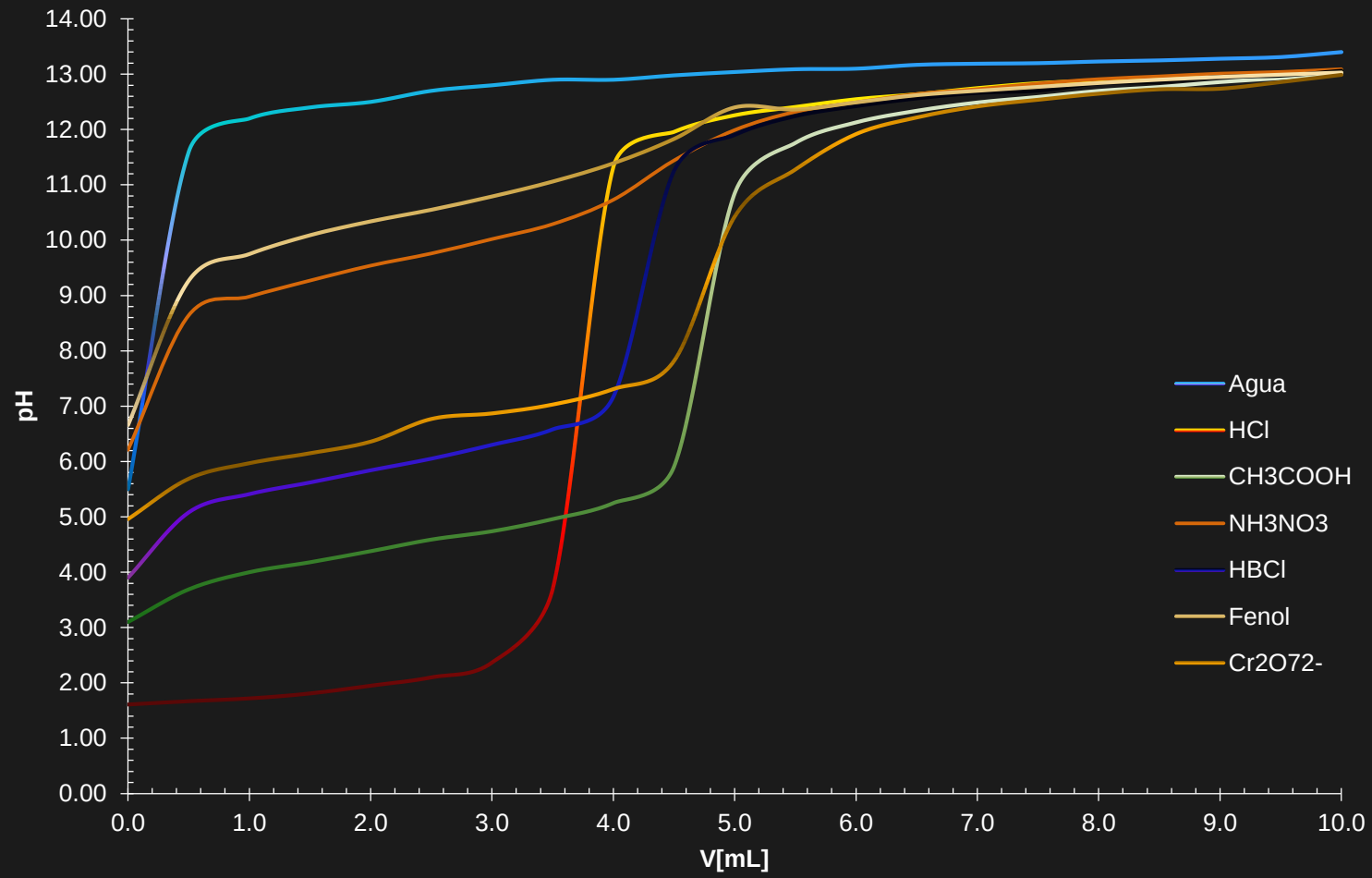


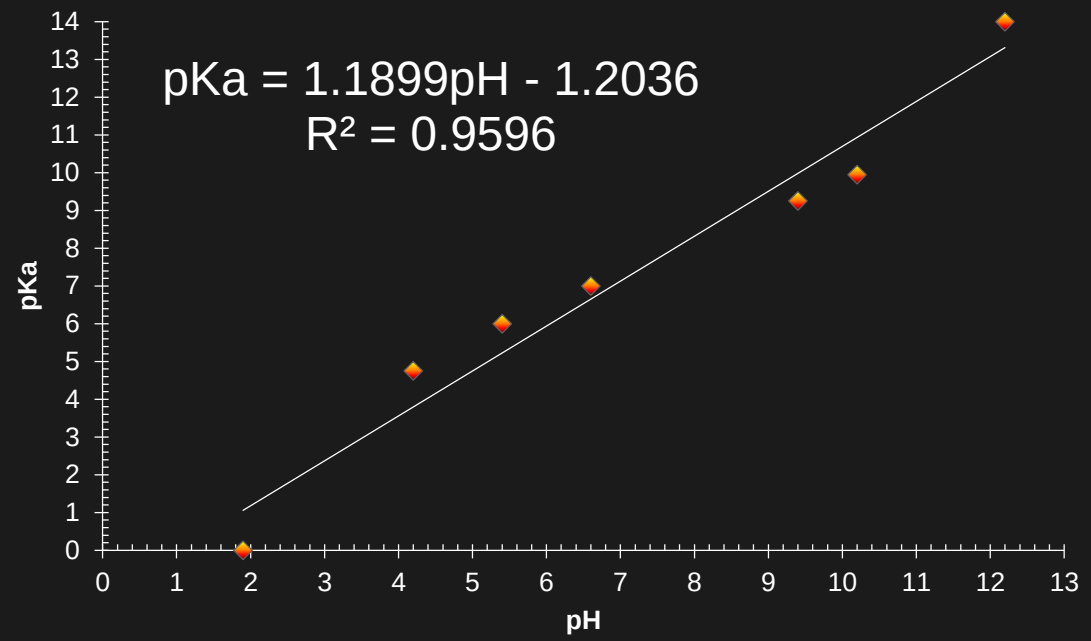
Figura 1: Gráfica pH = f(Vagregado) para cada sistema ensayado.

Contrucción de la gráfica pKa= f(pH(1/2(Vp.e.exp))

- Proponer una escala de reactividad ácido-base (preliminar).

	pH	pKa
HCl	1.90	0.00
CH_3COOH	4.20	4.75
HBCl	5.40	6.00
Fenol	10.20	9.95
NH_4NO_3	9.40	9.25
Cr_2O7_2-	6.60	7.00
H_20	12.20	14.00

Tabla 2: Valores de pKa y pH(1/2(Vp.e.exp)



Gráfica 2: pKa = f(pH(1/2(Vp.e.exp))

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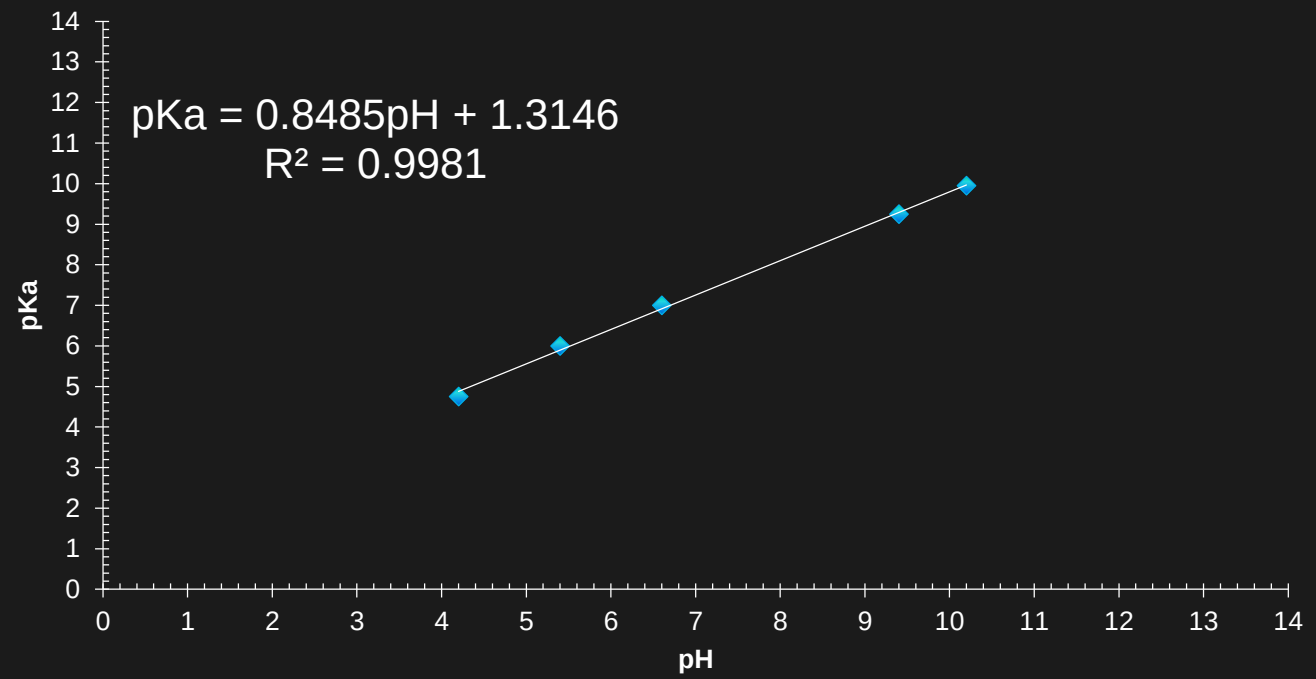
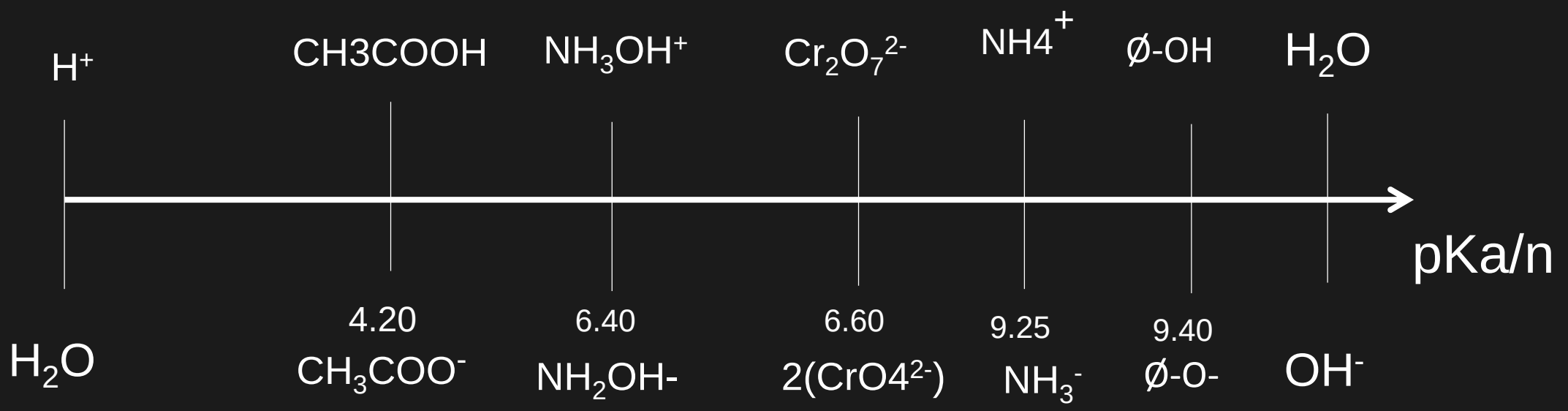
	pH	pKa
CH_3COOH	4.20	4.75
HBCl	5.40	6.00
Fenol	10.20	9.95
NH_4NO_3	9.40	9.25
Cr_2O7_2-	6.60	7.00

Tabla 3: Valores de pKa y pH(1/2(Vp.e.exp)



Gráfica 3: pKa = f(pH(1/2(Vp.e.exp))

Escala de reactividad ácido-base experimental (preliminar):

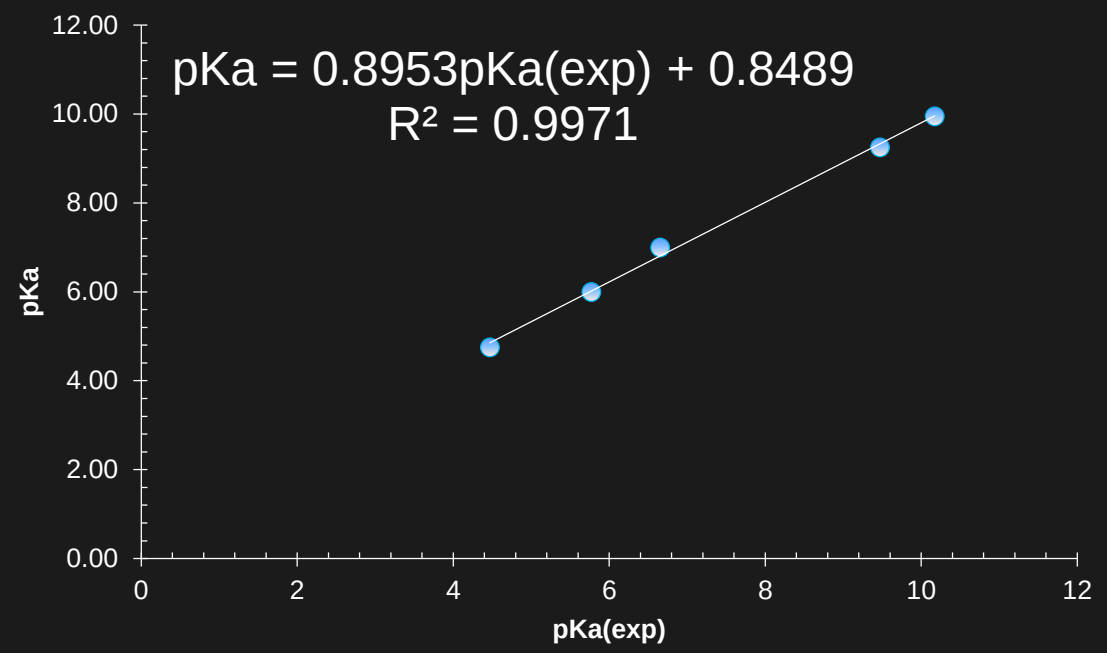


Proponer una escala de reactividad ácido-base

- Determinando el pKa(exp) a partir de la función de Gran.

	pKa_{exp}	pKa
CH_3COOH	4.47	4.75
HBCl	5.77	6.00
Fenol	10.17	9.95
NH_4NO_3	9.47	9.25
Cr_2O7_2-	6.65	7.00

Tabla 4: Valores de pKa y pKa(exp)



Gráfica 3: pKa = f(pKa(exp))

Escala de reactividad ácido-base experimental :