20th International Conference- Science, Technology and Innovation

Booklets

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Title: CO2 absorption using LIs functionalized with amino acids

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Editorial label RINOE: 607-8695
BECORFAN Control Number: 2023-03
BECORFAN Classification (2023): 111213-0301

Pages: 16
RNA: 03-2010-032610115700-14

RINOE - Mexico
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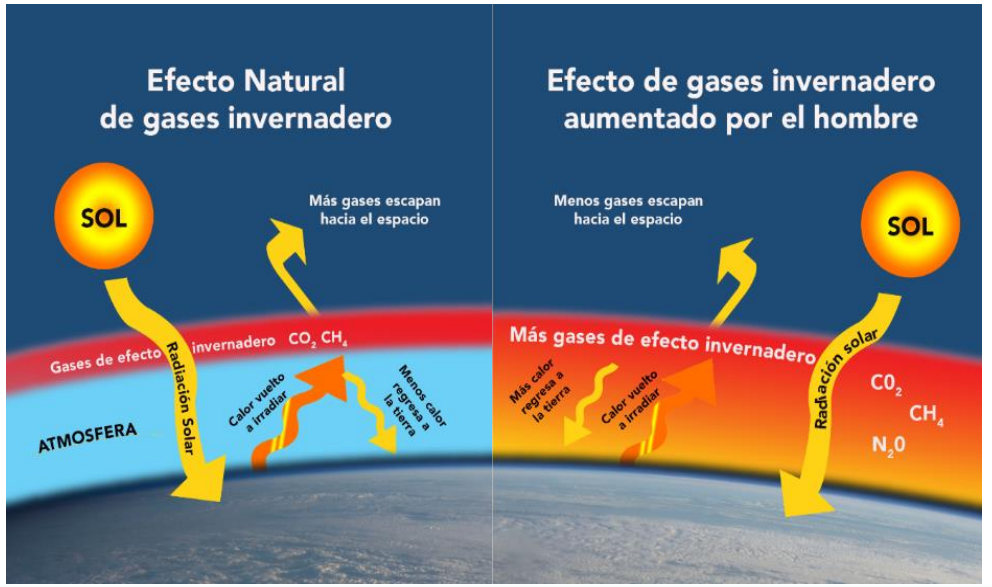
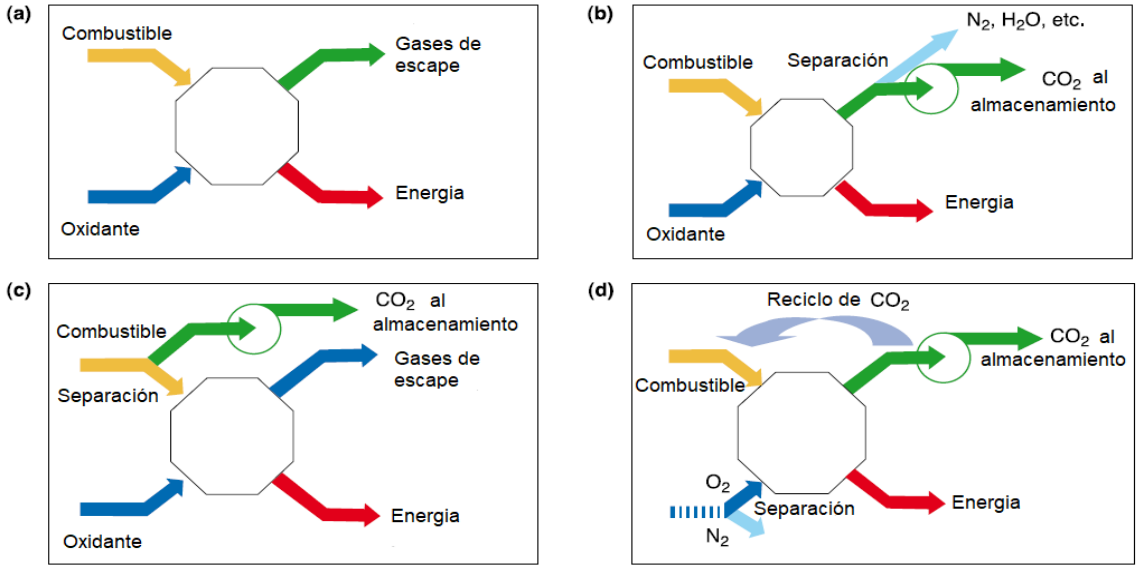
Introducción

Calentamiento global

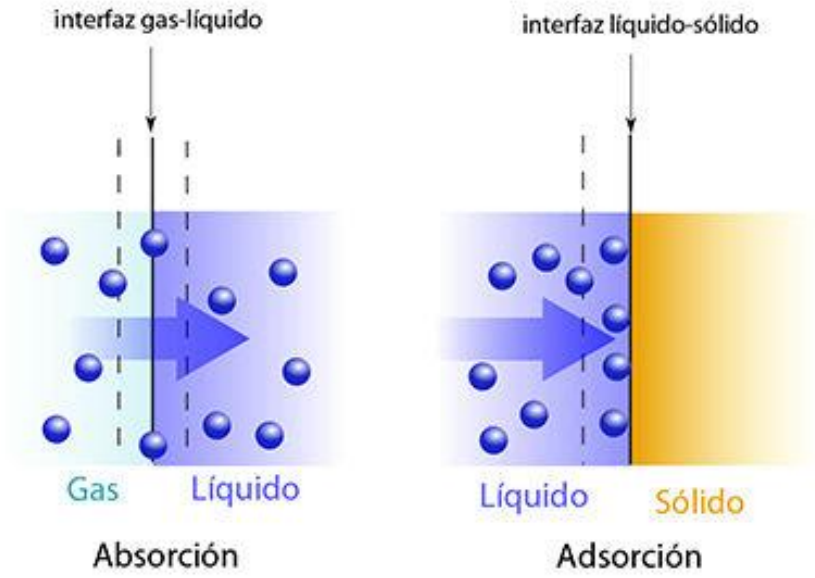


Captura de CO_2



Introducción

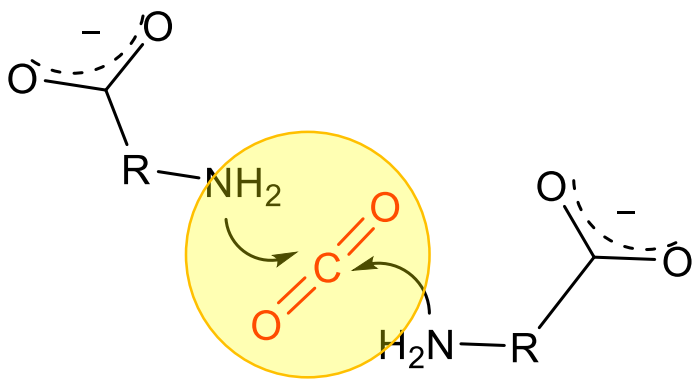
Absorción



Quimisorción: Enlace químico entre gas y liquido

Fisisorción: Interacciones débiles

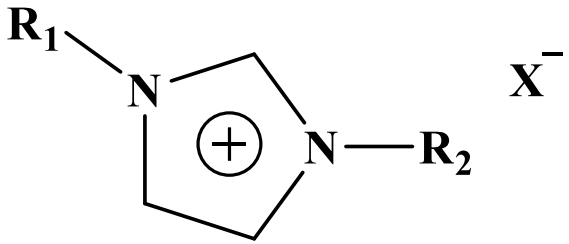
Introducción

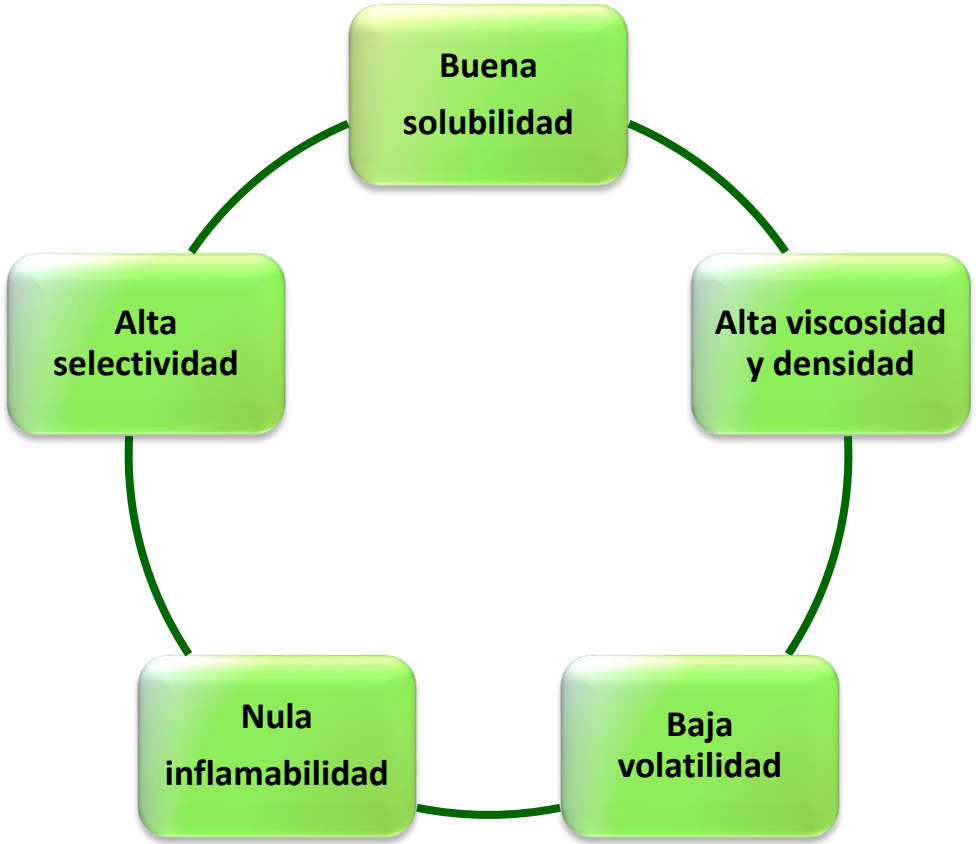


$$2(C_2H_4OH)NH_2 + CO_2 \underset{(2)}{\overset{(1)}{\rightleftharpoons}} (C_2H_4OH)NH_3^+ + (C_2H_4OH)NHCOO^-$$

MEA — Dióxido de carbono — MEA protonada — Carbamato

Líquidos iónicos





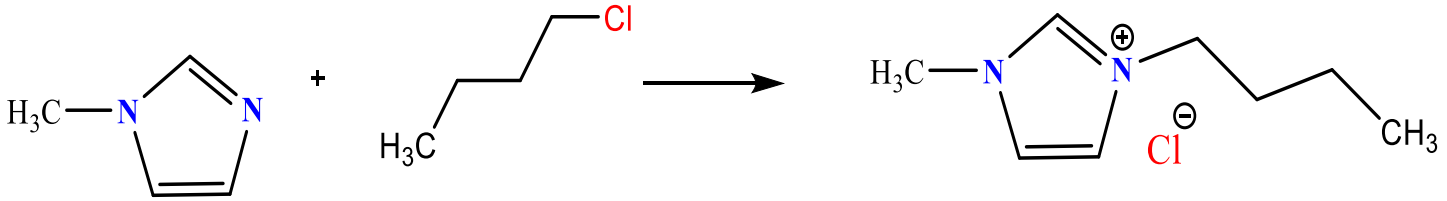
Modulación de sus propiedades físicas y químicas.

Absorción de CO_2

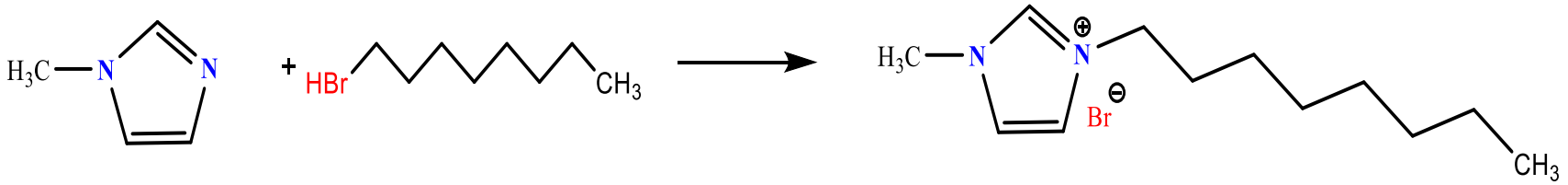
Metodología

Síntesis de precursores

[BMIM⁺][Cl⁻]

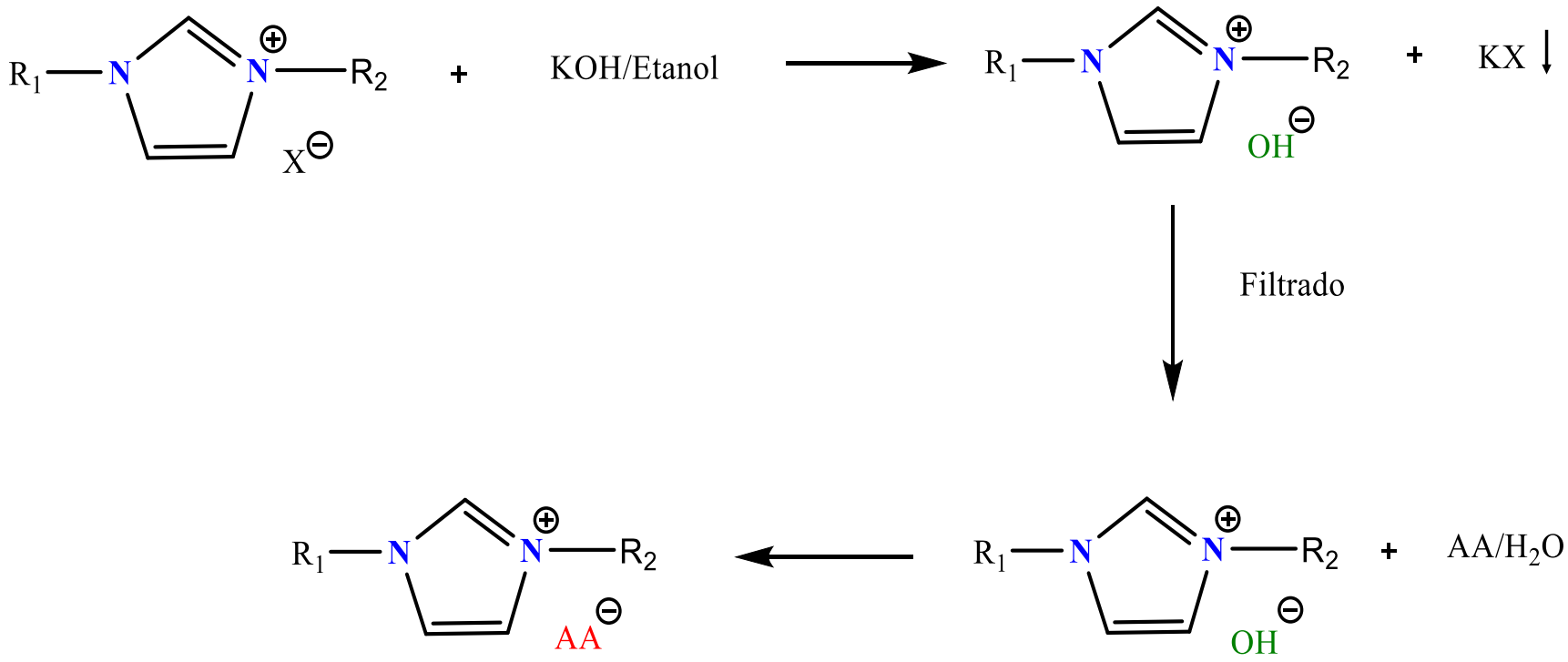


[OMIM⁺][Br⁻]



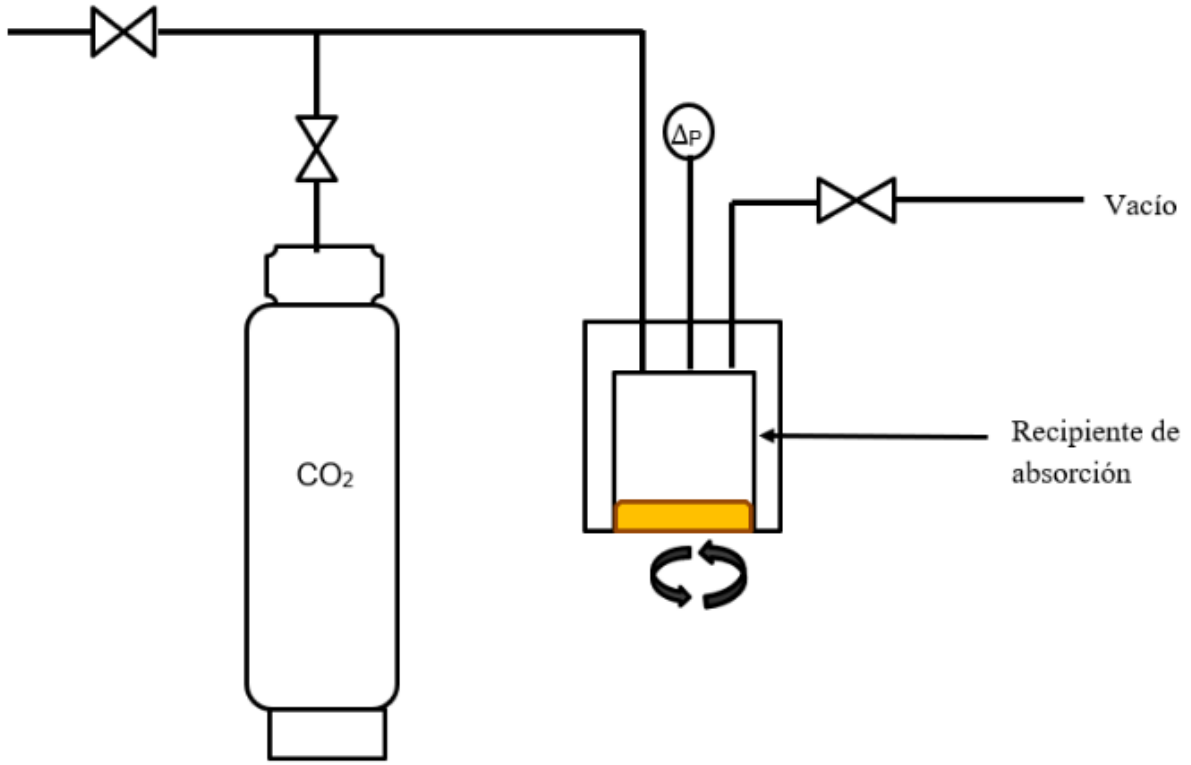
Metodología

Funcionalización con aminoácidos



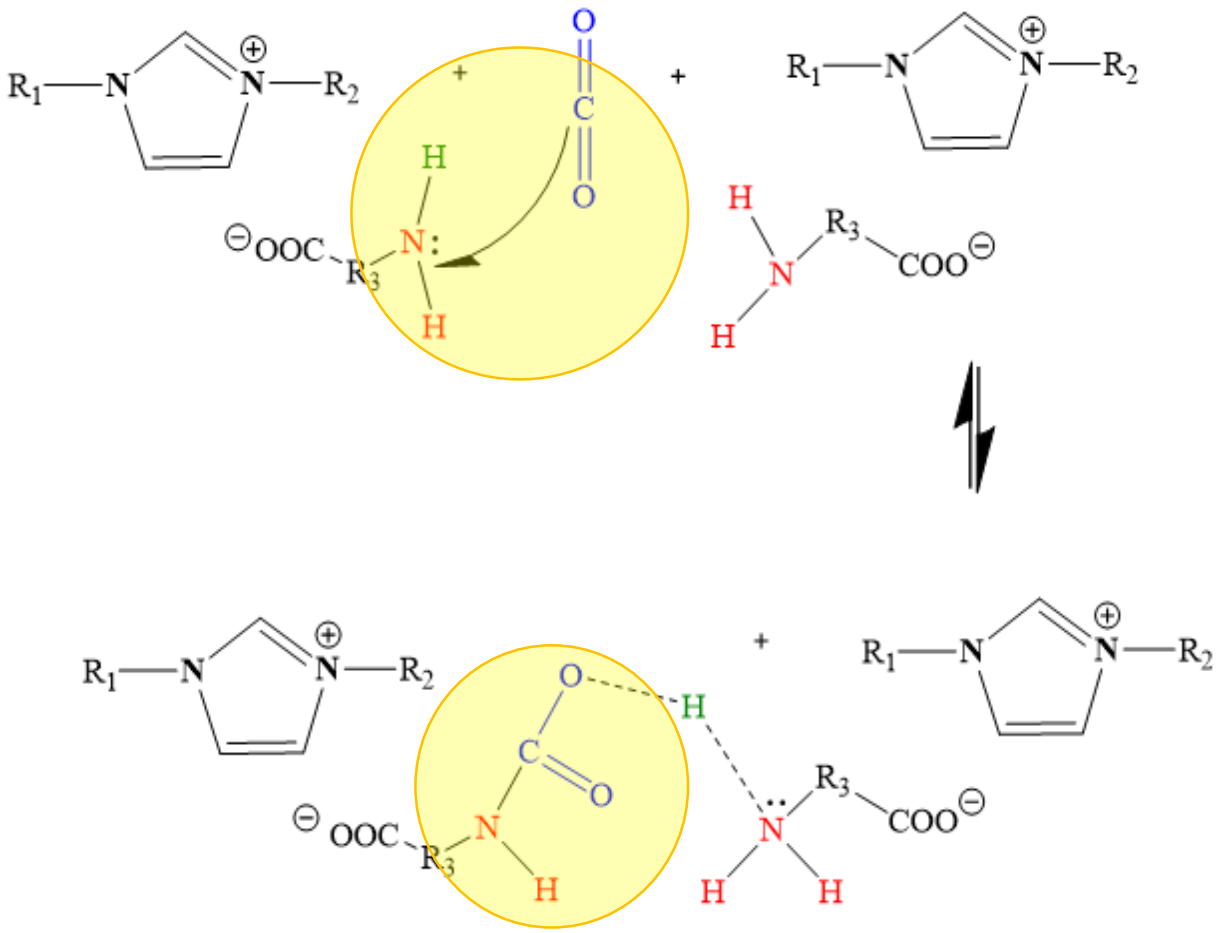
Metodología

Sistema utilizado en absorción

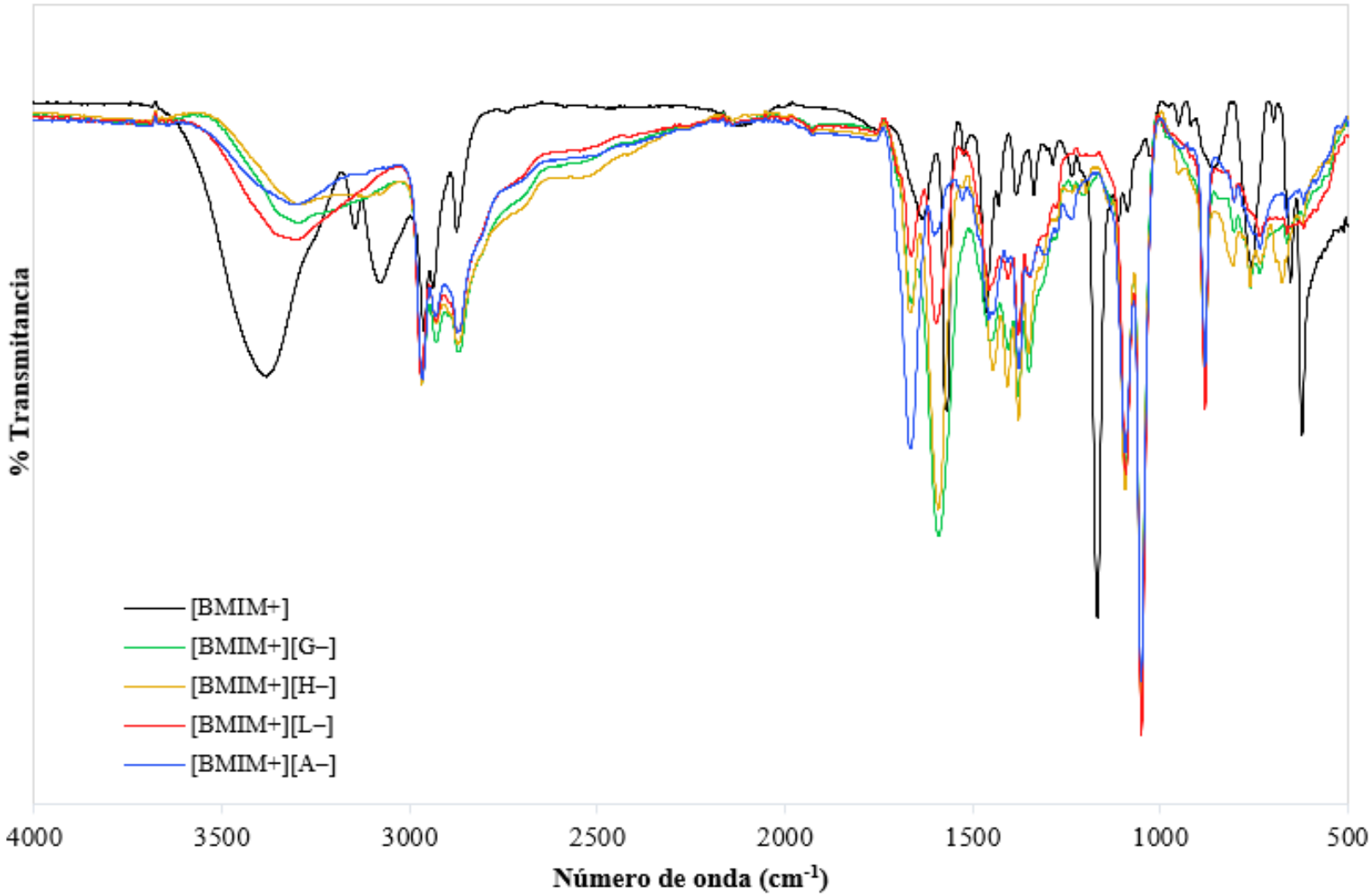


Metodología

Mecanismo de interacción

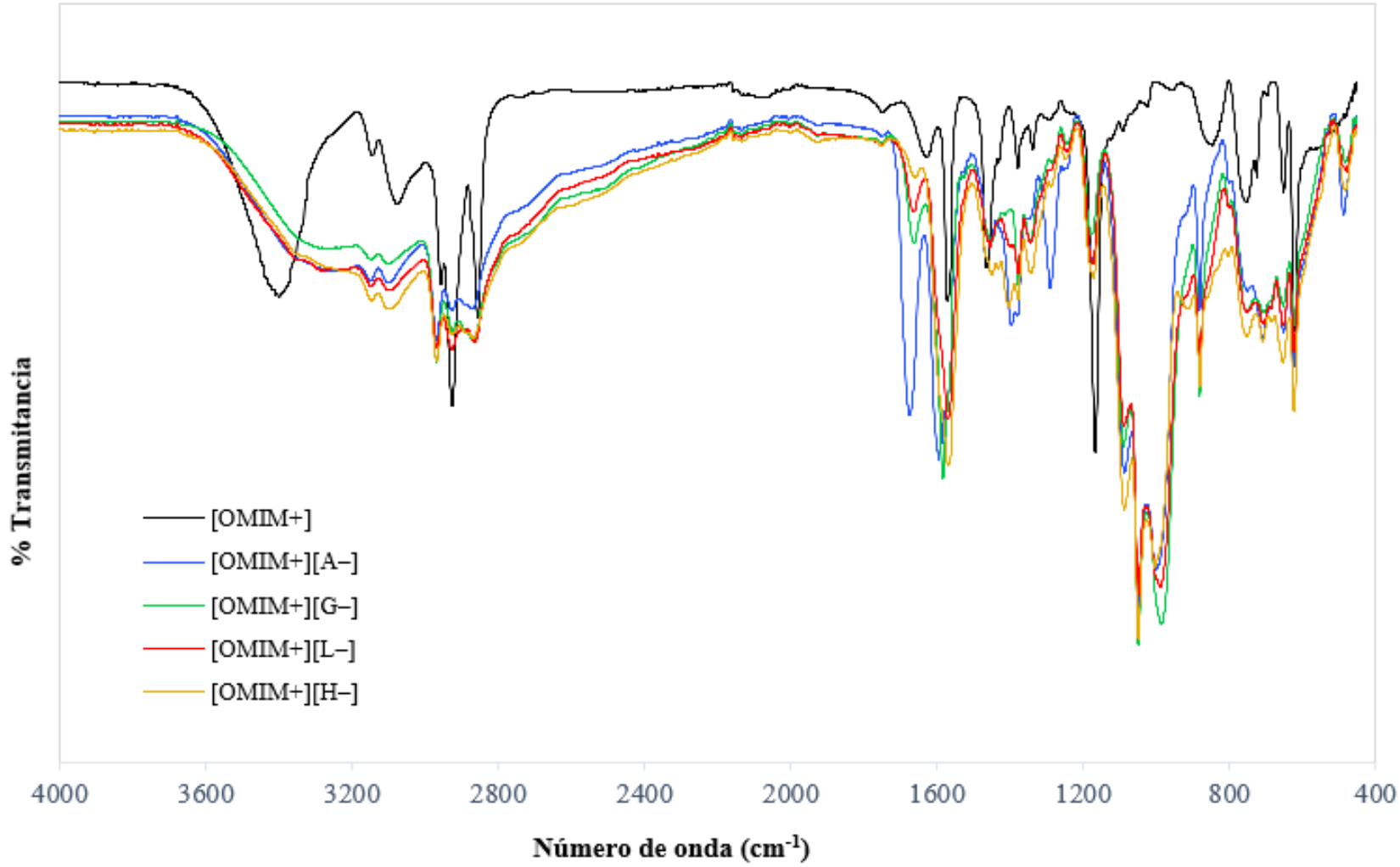


Resultados



Espectro FTIR de la familia de LIs del [BMIM$^+$][AA$^-$]

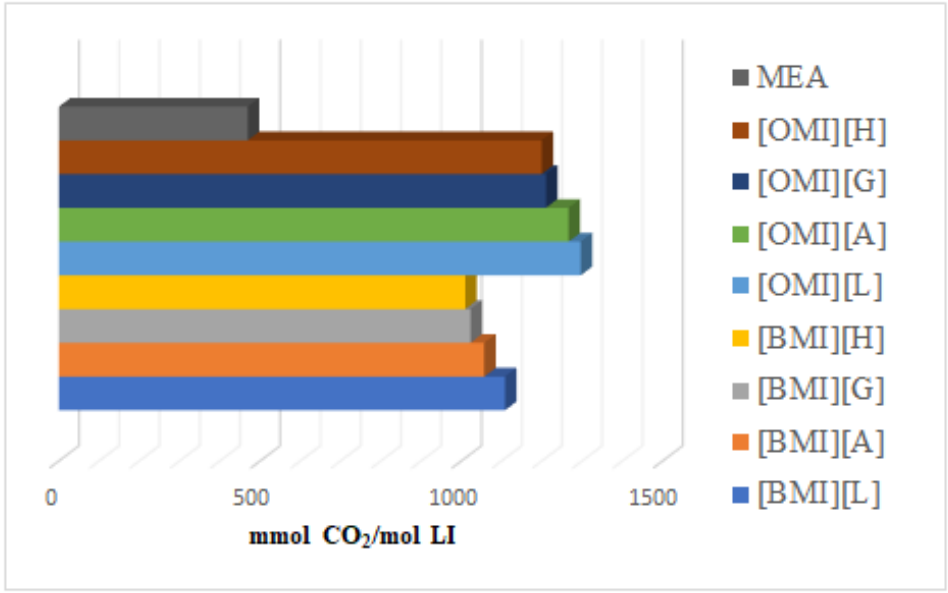
Resultados



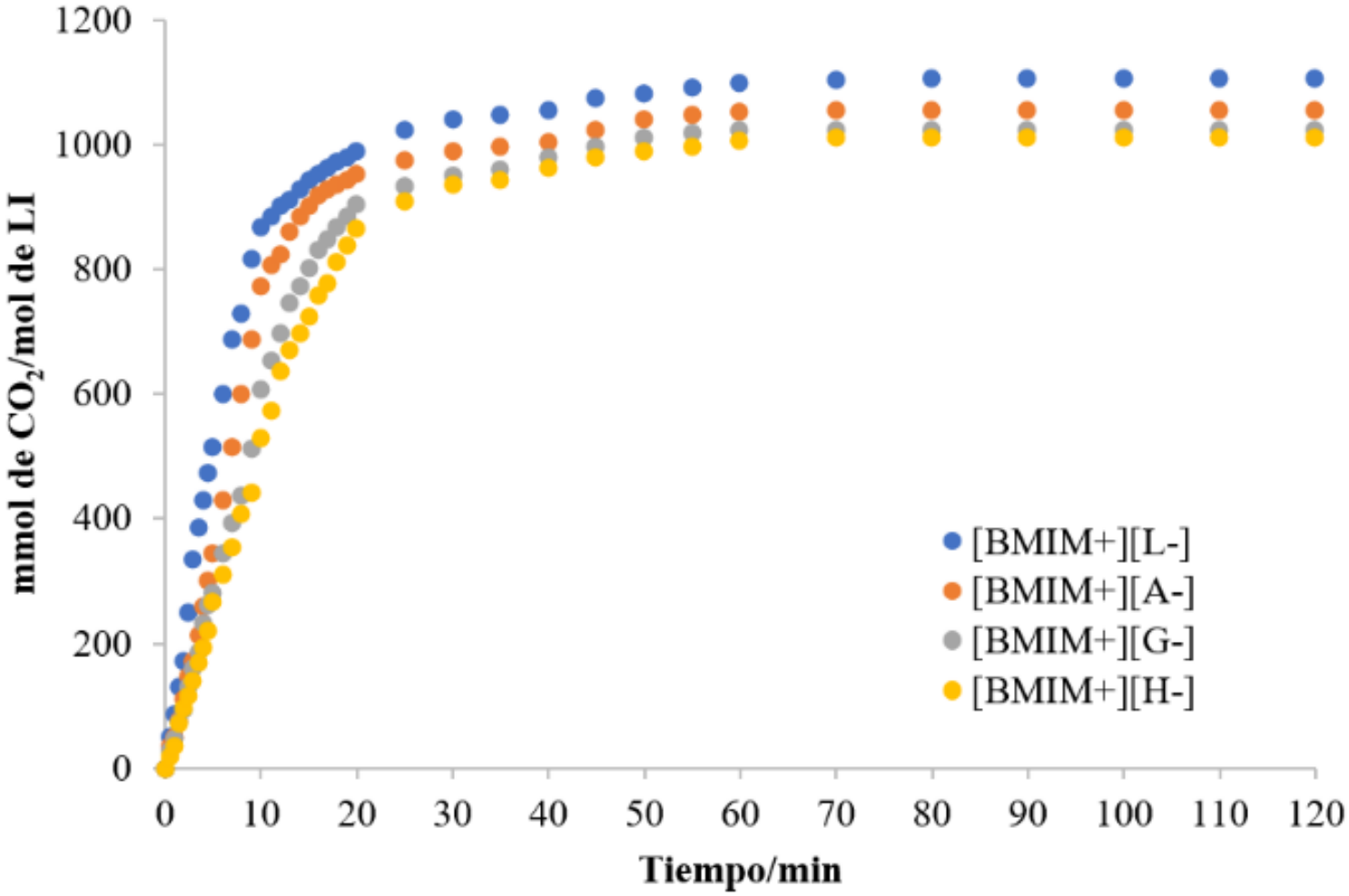
Espectro FTIR de la familia de LIs del [OMIM$^+$][AA$^-$].

Resultados

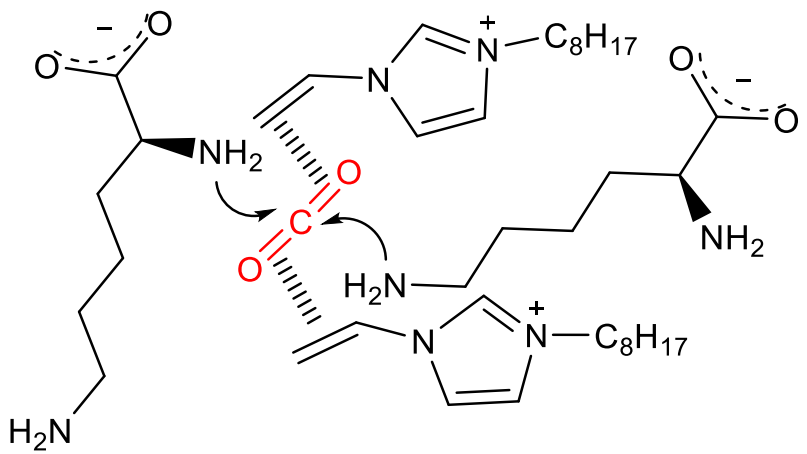
No.	Identificación	(mmol CO_2/ mol LI)	
		LI puro	LI en solución acuosa (35%)
1	[BMI][L]	821.47	1109.38
2	[BMI][A]	788.58	1057.80
3	[BMI][G]	761.94	1023.85
4	[BMI][H]	748.32	1010.70
5	[OMI][L]	719.25	1298.41
6	[OMI][A]	708.47	1268.43
7	[OMI][G]	902.62	1212.20
8	[OMI][H]	891.55	1200.45
9	MEA	-----	470.54



Resultados

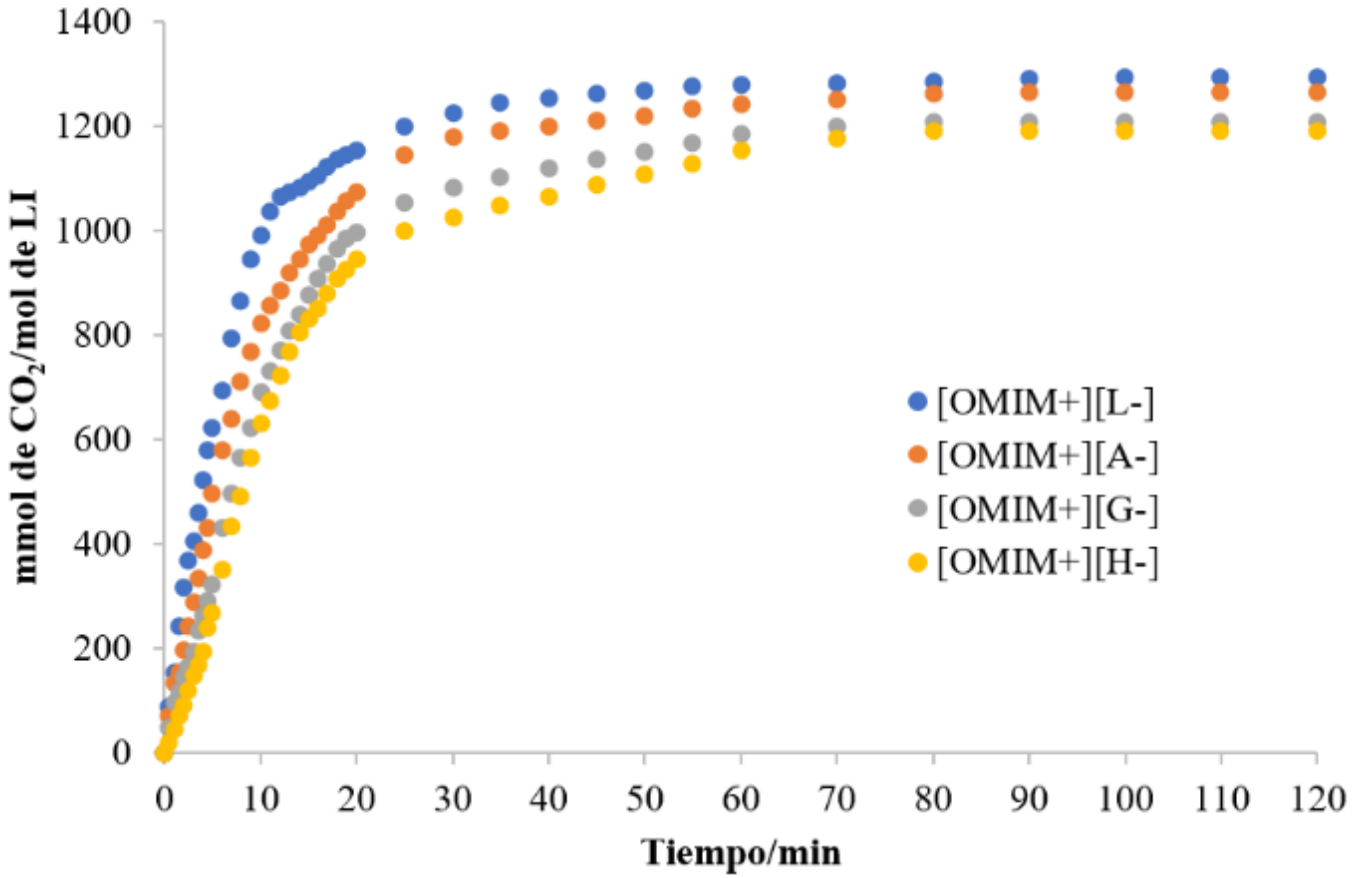


[OVIM$^+$][L$^-$]



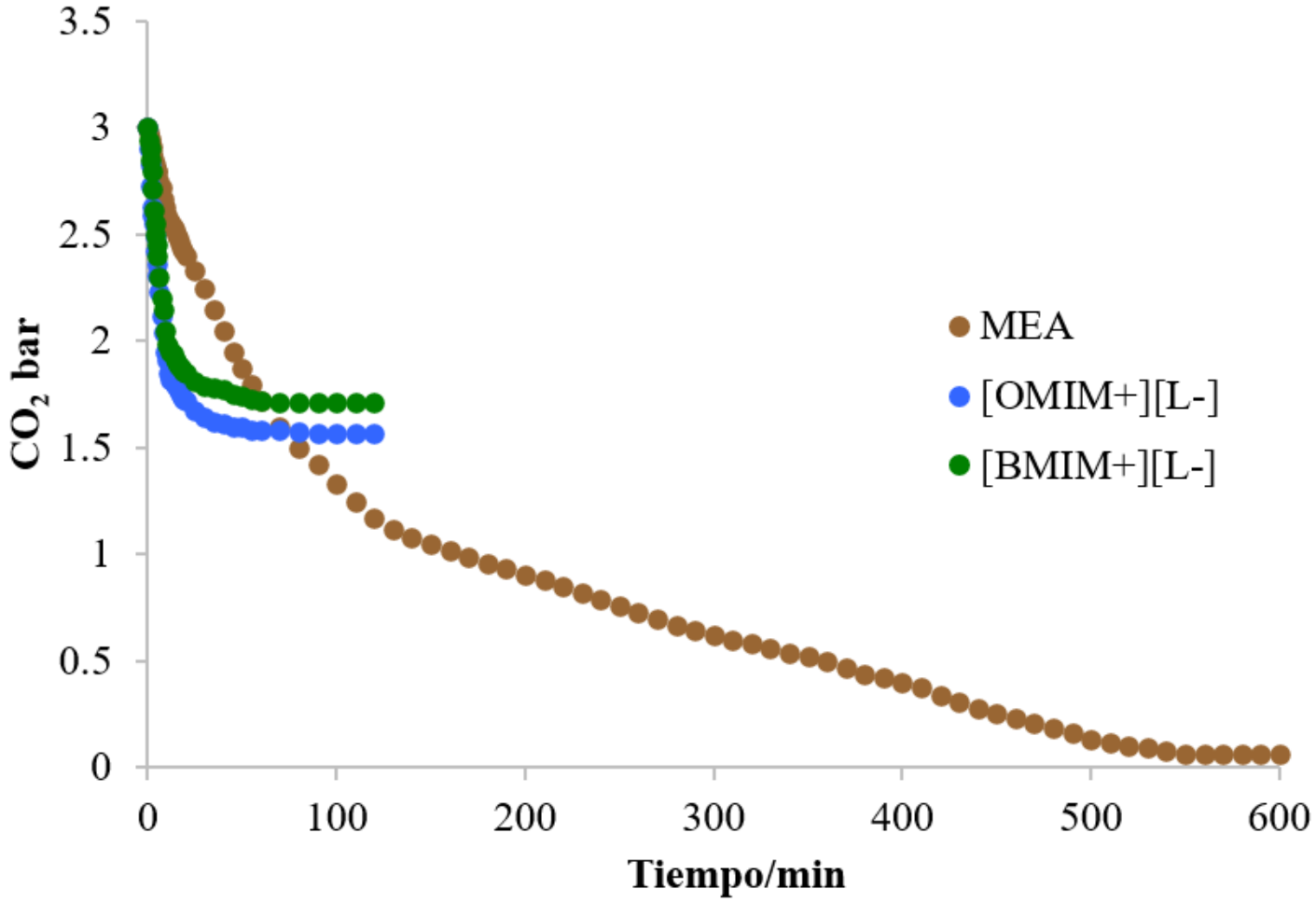
Variación de la capacidad de absorción de los [BMIM$^+$][AA$^-$] diluidos

Resultados



Variación de la capacidad de absorción de los [$OMIM^+$][AA^-] diluidos

Resultados



Cinética de absorción de los derivados de lisina en comparación con MEA.

Conclusiones

Los LIs derivados del [OMI] fueron los que obtuvieron los resultados más prometedores comparando con respecto a los derivados de [BMI], debido a que la absorción se ve favorecida con la longitud de la cadena alquílica obteniendo los mejores resultados con el aminoácido de lisina dado que la cantidad de grupos amino (especialmente primarios) en los aniones además del arreglo estructural favorece la absorción. La solubilidad de CO_2 se vio favorecida con la dilución de estos LIs-AA en agua, lo que se atribuye principalmente a procesos de fisisorción.

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