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Purpose

The objective of this study was to test deactivation agents for development of the Medsaway general medication disposal system.

Methods

Deactivation agents tested:

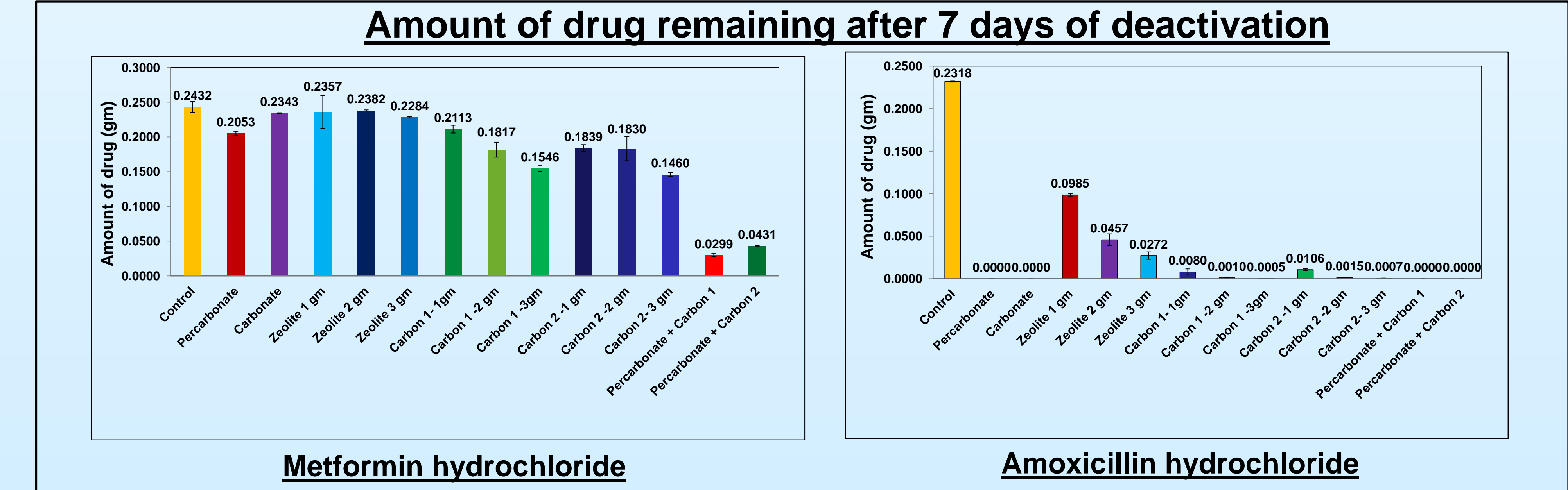
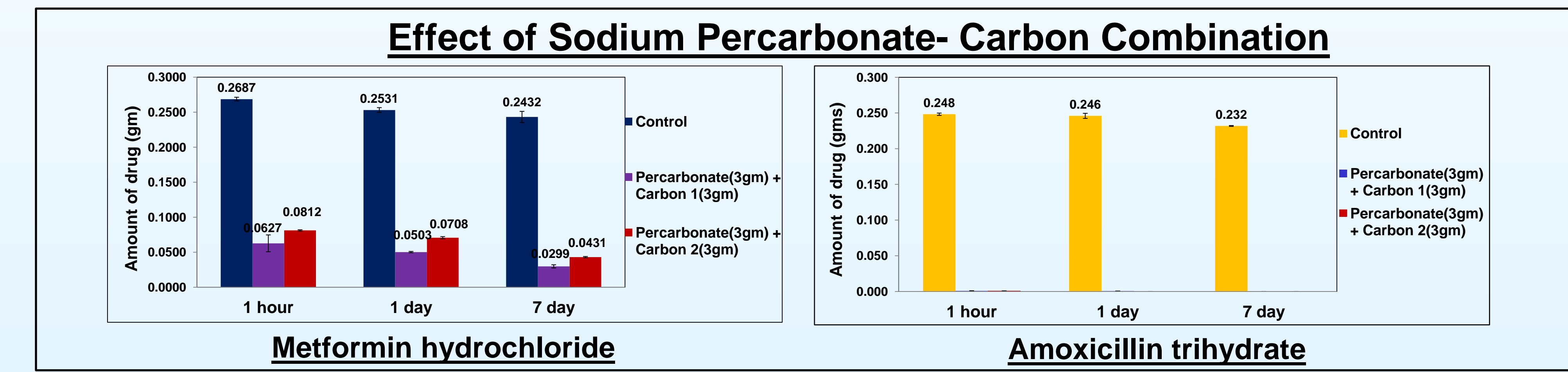
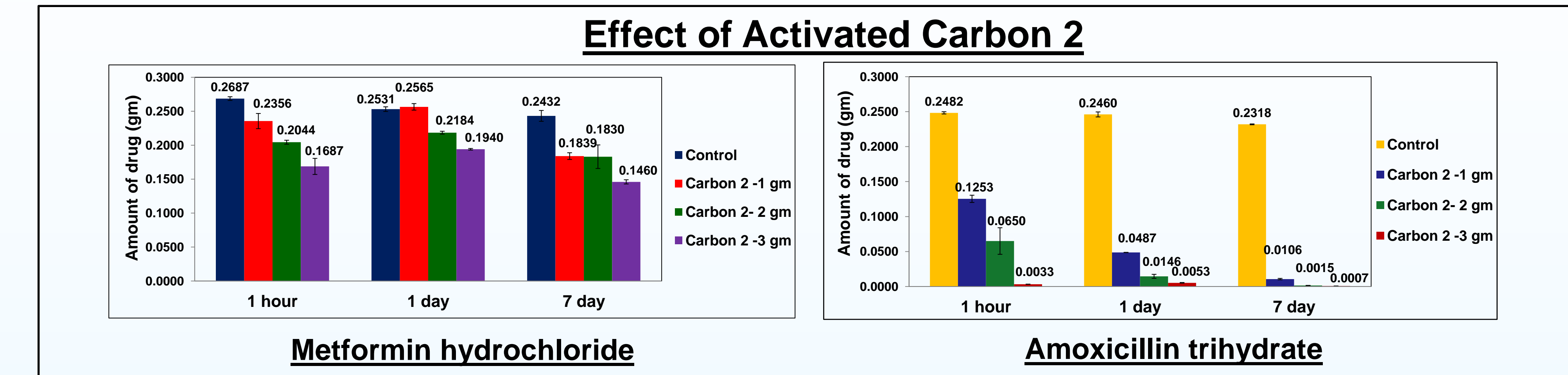
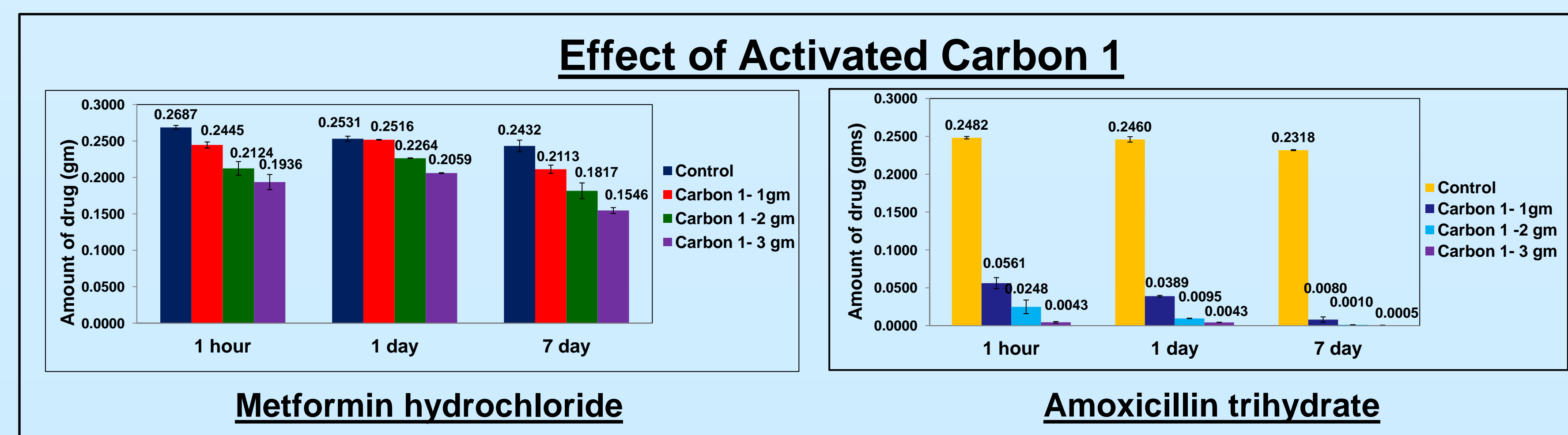
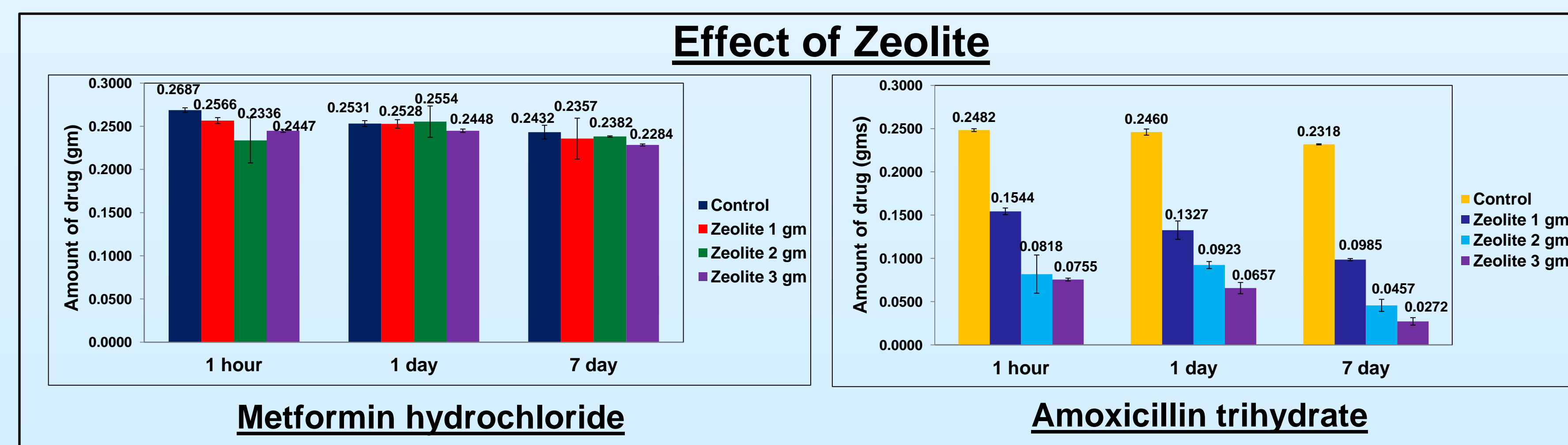
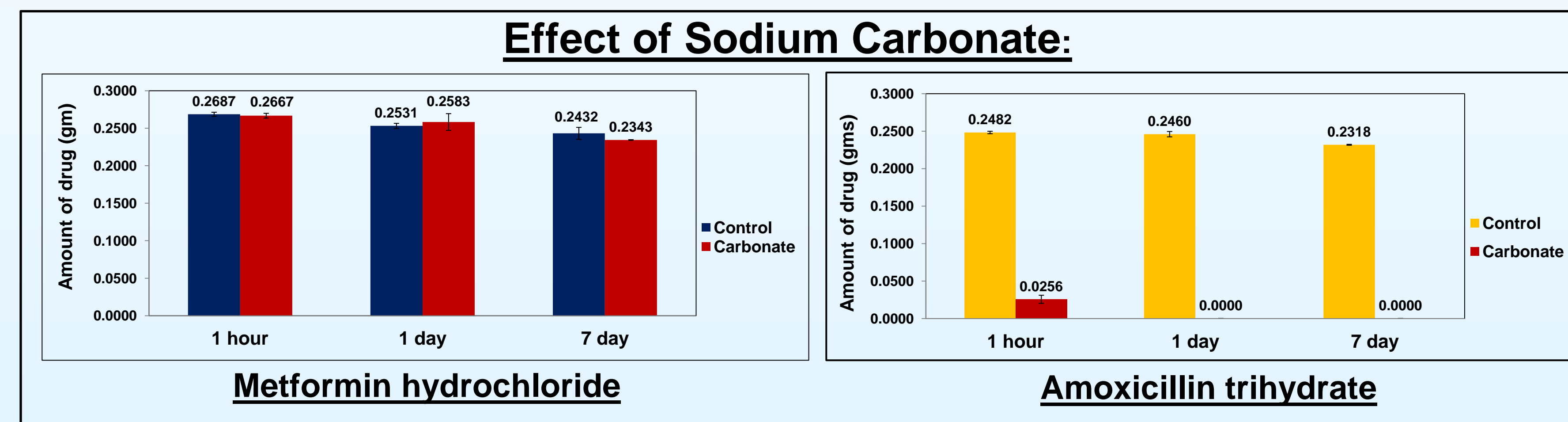
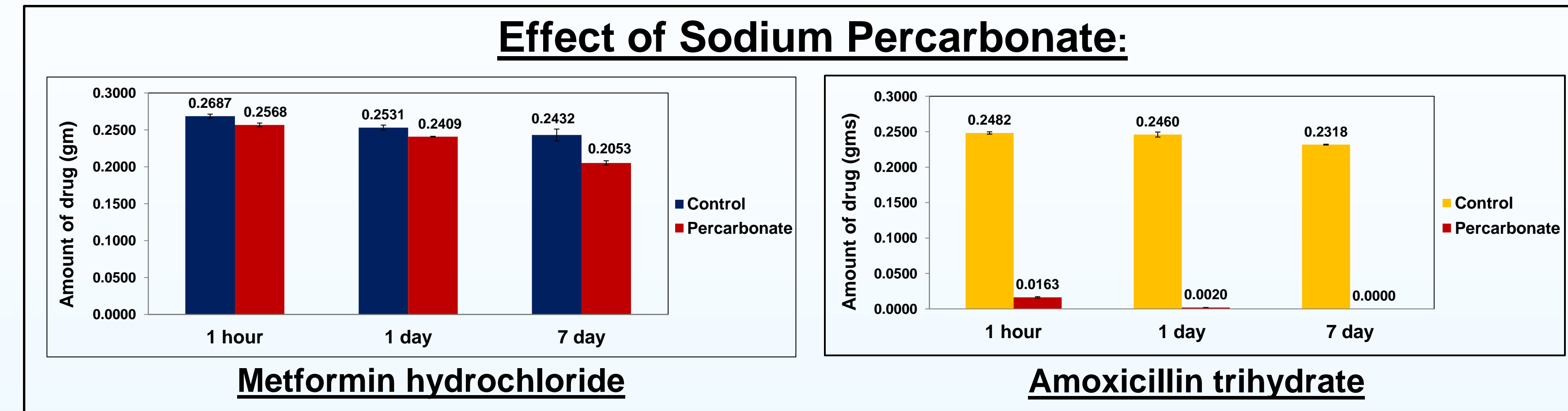
- Sodium percarbonate
- Sodium carbonate
- Zeolite
- Activated carbon 1 (Molasses number 180)
- Activated carbon 2 (Molasses number 150)
- Combination of percarbonate and activated carbons

Model Drugs:

- Metformin hydrochloride
- Amoxicillin trihydrate

Sample	Carbon 1 (gm)	Carbon 2 (gm)	Na Percarbonate (gm)	Na Carbonate (gm)	Zeolite (gm)	Drug (gm)	Deactivating agent
1	0	0	0	0	0	0.25	Control
2	0	0	3	0	0	0.25	Percarbonate
3	0	0	0	3	0	0.25	Carbonate
4	0	0	0	0	1	0.25	Zeolite
5	0	0	0	0	2	0.25	
6	0	0	0	0	3	0.25	
7	1	0	0	0	0	0.25	Carbon 1
8	2	0	0	0	0	0.25	
9	3	0	0	0	0	0.25	
10	0	1	0	0	0	0.25	Carbon 2
11	0	2	0	0	0	0.25	
12	0	3	0	0	0	0.25	
13	3	0	3	0	0	0.25	Carbon 1 + Percarbonate
14	0	3	3	0	0	0.25	Carbon 2 + Percarbonate

Results



Conclusion

- Adsorption agents, activated carbon 1 and carbon 2, showed continued increase in deactivation of metformin from 1 hour to 7 day. Percarbonate and carbon combination (both 1 and 2) worked synergistically and was most effective deactivating agent for metformin hydrochloride.
- Adsorption agents, activated carbon 1, carbon 2 and zeolite showed continued increase in deactivation of amoxicillin from 1 hour to 7 day, activated carbon 1 and 2 however showed better results as compared to zeolite. Percarbonate and carbon combination (both 1 and 2) lead to complete deactivation of amoxicillin trihydrate within 1 hr and was the most effective deactivating agent.

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