

Table 3: *In vitro* antibacterial activities of semicarbazones

Compound Code	% Inhibition			
	<i>S. aureus</i>		<i>E. coli</i>	
	50 mg/mL	100 mg/mL	50 mg/mL	100 mg/mL
SCz-1	75	70	65	60
SCz-2	60	55	40	45
SCz-3	80	90	80	95
SCz-4	75	76	79	90
SCz-5	82	85	85	90
SCz-6	30	30	35	36
SCz-7	35	38	40	45
SCz-8	40	42	45	48
SCz-9	68	65	75	74
SCz-10	65	68	68	70
Sulfamethoxazole	50	55	48	50
Trimethoprim	45	45	46	48

4. Conclusion

The present study revealed the synthesis, characterization and biological evaluation of different semicarbazones. Compounds were synthesized by condensation reaction of appropriate ketone with semicarbazide and screened for antibacterial activity. All of these compounds exhibited antibacterial effect but most of these compounds showed better antibacterial action than the two standard drugs used for the comparison. The present study indicates that the most potential compounds warrant further detailed investigation in order to develop better antibacterial agents.

References

- [1] M Jawed A, J G Samy, H Khalilullah, M. S Nomani, "Semicarbazone analogues: A mini review", *Der Pharmacia Sinica*, 2 (6), pp107-113, 2011.
- [2] H Rajak, "Synthesis and Evaluation of Some Novel Semicarbazones Based Benzimidazole Derivatives as Anticonvulsant Agent", *International Journal of Chemical Engineering and Applications*, 6(2), pp.142-145, 2015.
- [3] M J Ahsan, "Semicarbazone analogs as anticonvulsant agents: a review", *CNS Agents Med Chem*, 13(2), pp148-158, 2013.
- [4] H P Singh, C S Chauhan, S N Pandeya, C S Sharma, B Srivastava, M. Singhal, "Design, Synthesis, Analgesic and Anti-Inflammatory Activity of Some novel Chalcone semicarbazone derivatives", *Der Pharmacia Lettre*, 2(2), pp 460-462, 2010.
- [5] D Sriram, P Yogeewari, R S Thirumurugan, "Antituberculous activity of some aryl semicarbazone derivatives", *Bioorg. Med. Chem. Lett.*, 14, 3923-3924, 2004.
- [6] H N Dogan, A Duran, E Yemni, "Synthesis and antibacterial activity of 1-(3-hydroxy-2-naphthoyl)-4-substituted thiosemicarbazides", *Drug Metabol Drug Interact*, 15(2-3), pp187-195, 1999.
- [7] S N Pandeya, J R Dimmock, "Recent evaluations of thiosemicarbazones and semicarbazones and related compounds for antineoplastic and anticonvulsant activities", *Pharmazie*, 48(9), pp659-666, 1993.
- [8] S Dutta, S Padhye, K I Priya darsini, C Newton, "Antioxidant and antiproliferative activity of curcumin semicarbazone". *Bioorg Med Chem Lett*, 15(11), pp2738-2744, 2005.

- [9] S M M Ali, M A K Azad, M A Jesmin, S Hasan, M M Rahman, J A Khanam, M N Islam, S M S Shahriar, "In vivo anticancer activity of vanillin semicarbazone", *Asian Pac J Trop Biomed*, 2(6), pp438-442, 2012.
- [10] Y F Win, S G Teoh, M R Vikneswaran, S T Ha, I Pazilah, "Synthesis and characterization of organotin(IV) complexes derived of 4-(diethylamino) benzoic acid: *In vitro* antibacterial screening activity", *International Journal of the Physical Sciences*, 5, pp1263-1269, 2010.

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