

Table 5. Comparison result of Cl₃CCO₂H with the reported catalysts in literature for the synthesis of highly functionalized dihydro-2-oxypyrrroles **4i** and **4l**.

Entry	Product	Catalyst	Conditions	Time (h)	Yield (%)	Ref.
1	4i	Cl ₃ CCO ₂ H	MeOH, r.t.	4	95	This work
2		Cu(OAc) ₂ ·H ₂ O	MeOH, r.t.	5	85	[18]
3		I ₂	MeOH, r.t.	1	81	[16]
4		AcOH	EtOH/ 70 °C	4	85	[15]
5		Oxalic acid dehydrate	MeOH, r.t.	2	87	[28]
6		[Hpyro][HSO ₄]	MeOH, r.t.	6	80	[22]
7		Al(H ₂ PO ₄) ₃	MeOH, r.t.	5	80	[23]
8		InCl ₃	MeOH, r.t.	3	85	[27]
9		[n-Bu ₄ N][HSO ₄]	MeOH, r.t.	4	86	[24]
10	4l	Cl ₃ CCO ₂ H	MeOH, r.t.	4	91	This work
11		Cu(OAc) ₂ ·H ₂ O	MeOH, r.t.	6	91	[18]
12		I ₂	MeOH, r.t.	1	82	[16]
13		AcOH	EtOH/ 70 °C	-	-	[15]
14		Oxalic acid dehydrate	MeOH, r.t.	2	89	[28]
15		[Hpyro][HSO ₄]	MeOH, r.t.	6	82	[22]
16		Al(H ₂ PO ₄) ₃	MeOH, r.t.	5	81	[23]
17		InCl ₃	MeOH, r.t.	3	85	[27]
18		[n-Bu ₄ N][HSO ₄]	MeOH, r.t.	4	88	[24]

[14] T. Agatsuma, T. Akama, S. Nara, S. Matsumiya, R. Nakai, H. Ogawa, S. Otaki, S. Ikeda, Y. Saitoh, Y. Kanda, *Org. Lett.* 4 (2002) 4387-4390.
 [15] Q. Zhu, H. Jiang, J. Li, S. Liu, C. Xia, M. Zhang, *J. Comb. Chem.* 11 (2009) 685-696.
 [16] A.T. Khan, A. Ghosh, M.M. Khan, *Tetrahedron Lett.* 53 (2012) 2622-2626.
 [17] S. Rana, M. Brown, A. Dutta, A. Bhaumik, C. Mukhopadhyay, *Tetrahedron Lett.* 54 (2013) 1371-1379.
 [18] L. Lv, S. Zheng, X. Cai, Z. Chen, Q. Zhu, S. Liu, *ACS Comb. Sci.* 15 (2013) 183-192.
 [19] Q. Zhu, L. Gao, Z. Chen, S. Zheng, H. Shu, J. Li, H. Jiang, S. Liu, *Eur. J. Med. Chem.* 54 (2012) 232-238.
 [20] Y. Han, Q. Wu, J. Sun, C.G. Yan, *Tetrahedron* 68 (2012) 8539-8544.
 [21] Q. Zhu, L. Huang, Z. Chen, S. Zheng, L. Lv, Z. Zhu, D. Cao, H. Jiang, S. Liu, *Chem. Eur. J.* 19 (2013) 1268-1280.
 [22] S.S. Sajadikhah, N. Hazeri, M.T. Maghsoodlou, S.M. Habibi-Khorassani, *J. Chin. Chem. Soc.* 60 (2013) 1003-1006.

[23] S.S. Sajadikhah, N. Hazeri, M.T. Maghsoodlou, S.M. Habibi-Khorassani, A. Beigbabaei, A.C. Willis, *J. Iran. Chem. Soc.* 10 (2013) 863-871.
 [24] S.S. Sajadikhah, N. Hazeri, *Res. Chem. Intermed.* 40 (2014) 737-748.
 [25] N. Hazeri, S.S. Sajadikhah, M.T. Maghsoodlou, S. Mohamadian-Souri, M. Norouzi, M. Moein, *J. Chin. Chem. Soc.* 61 (2014) 217-220.
 [26] S.S. Sajadikhah, M.T. Maghsoodlou, N. Hazeri, *Res. Chem. Intermed.* (2013), in press.
 [27] S.S. Sajadikhah, M.T. Maghsoodlou, N. Hazeri, *Chin. Chem. Lett.* 25 (2014) 58-60.
 [28] S.S. Sajadikhah, N. Hazeri, M.T. Maghsoodlou, S.M. Habibi-Khorassani, K. Khandan-Barani, *J. Chem. Res.* (2013) 40-42.
 [29] S.S. Sajadikhah, M.T. Maghsoodlou, N. Hazeri, M. Moein, M. Norouzi, S. Mohamadian-Souri, *Lett. Org. Chem.* 11 (2014) 268-272.
 [30] N. Hazeri, S.S. Sajadikhah, M.T. Maghsoodlou, S. Mohamadian-Souri, M. Norouzi, M. Moein, *J. Chin. Chem. Soc.* 61 (2014) 217-220.