Reaction of *N*-Sulfonyl-1,2,3-Triazole with *β*-Diketone

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Imino carbenoids **I** derived from *N*-sulfonyl-1,2,3-triazoles **1** can undergo useful tandem reactions, because they have a nucleophilic imino group in addition to an electrophilic carbenoid moiety.[1,2] In present study, we investigated that Rh(II)-catalyzed reaction of *N*-sulfonyl-1,2,3-triazoles **1** with various *β*-diketones **2**. Enaminone **3aa** and 2,3-fused pyrrole **4aa** were formed by any Rh(II)-catalyzed reaction of *N*-tosyl-1,2,3-triazole **1a** with cyclic diketone **2a** (Table 1, Entries 1–3). It was revealed that **3aa** was produced predominantly by more sterically hindered $Rh_2(piv)_4$ catalyst (Table 1, Entry 3). However, less sterically hindered $Rh_2(OAc)_4$-catalysed reaction gave preferentially **4aa** (Table 1, Entry 1). In addition, triazole skeleton-remained **5aa** and **5'aa** were obtained as major product by $Rh(OAc)_4$-catalyzed reaction and non-Rh(II) catalyzed reaction (Table 1, Entry 1 and 4). On the other hand, **5aa** and **5'aa** were not isolated by $Rh_2(piv)_4$-catalyzed or $Rh_2(hex)_4$-catalyzed reaction.

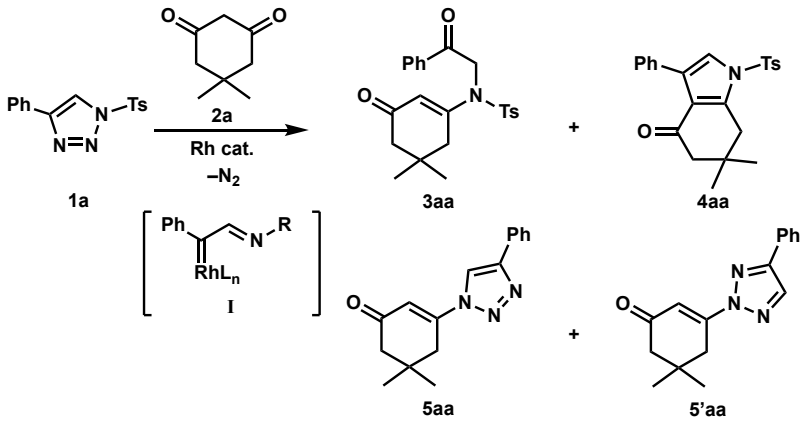

Table 1. Reaction of triazole 1a with dimedone 2a under various conditions[a]

Entry	Rh cat.	Yield[b] (%)				Ratio	Ratio
		3aa	4aa	5aa	5'aa	3aa : 4aa	5aa : 5'aa
1	$Rh_2(OAc)_4$	9	19	29	10	32 : 68	74 : 26
2	$Rh_2(hex)_4$	39	8	–	–	83 : 17	–
3	$Rh_2(piv)_4$	47	4	–	–	92 : 8	–
4	None	–	–	32	29	–	52 : 48

[a]Conditions: 1 (1.0 mmol), 2 (3.0 mmol), 4 Å MS (400 mg), and Rh(II) catalyst (2 mol%) were combined in toluene (5 ml) and stirred at 100 ºC under an argon atmosphere.
[b]Isolated yield.

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