Title:	Synthesis of α-Heterocycle Anchored Spirocyclic Azetidin-2-ones in a Minute by p-TSA Catalyzed Cyclocondensation of Azetidin-2,3-diones with Difunctionalized Substrates
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Abstract:	Monocyclic azetidin-2,3-diones provide easy extensions to spiro-fused azetidin-2-ones upon p-toluenesulfonic acid (p-TSA) catalyzed cyclocondensation reaction with difunctionalized substrates [mercaptoacids (mercaptoacetic acid, 2-mercaptopropionic acid, 3-mercaptopropionic acid), ethan-1,2-dithiol, ortho-difunctionalized benzenes (ortho-phenylenediamine, ortho-aminothiophenol)]. 1,3-Oxathiolan-5-one/6-one, 1,3-dithiolane, 2,3-dihydrobenzo[d]imidazole and 2,3-dihydrobenzo[d]thiazole tethered spirocyclic azetidin-2-ones were obtained in good overall isolated yields (69–89 %) in a very short-time duration (max 1 min) using toluene Dean-Stark reflux/dichloromethane rt stirring conditions. The stereochemical and spectral studies, stabilities and diastereoisomeric ratio for trans and cis spiro-fused products are reported. The trans and cis configuration has been assigned to spiro-β-lactams wrt the stereochemical relationship between sulfur atom (at spiro centre) and the vicinal methine hydrogen atom at C3/C2. The absolute configuration of one trans 1,3-oxathiolan-5-one fused spirocyclic azetidin-2-one was clearly identified by X-ray single crystal structure analysis.
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