Diversity-oriented syntheses of sulfur-heterocycles as potential biologically active compounds

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The impact of sulfur-heterocyclic compounds in pharmaceutical industry is significant,[1] therefore the search for efficient syntheses to provide this type of compounds with a wide diversity of structures represents an interesting subject. Our research focuses on the development of new efficient atom and step-economical approaches to access original S-heterocycles for therapeutic applications. Multicomponent reactions and metal-mediated domino processes, which represent powerful tools in the synthesis of various heterocyclic molecules, are particularly studied in our laboratory for this purpose.[2] In this communication will be presented three synthetic methods that we developed, giving access to valuable S- and N,S-heterocycles with a wide variety of structures (Figure 1): 1,3-thiazines, 2-amino-benzothiazoles, benzothiolanes and thiochromanes, and challenging medium-sized (> 7 atoms) N,S-heterocycles. Current efforts are focused on exploiting these scaffolds in medicinal chemistry.

Figure 1: Examples of synthesized sulfur-containing heterocycles via multicomponent and domino reactions