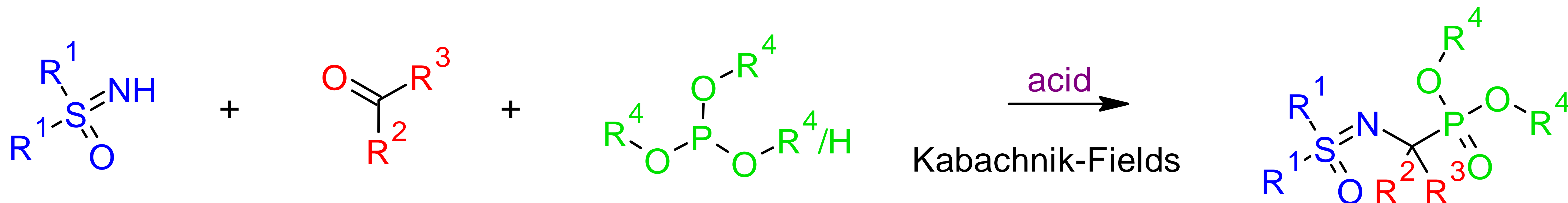




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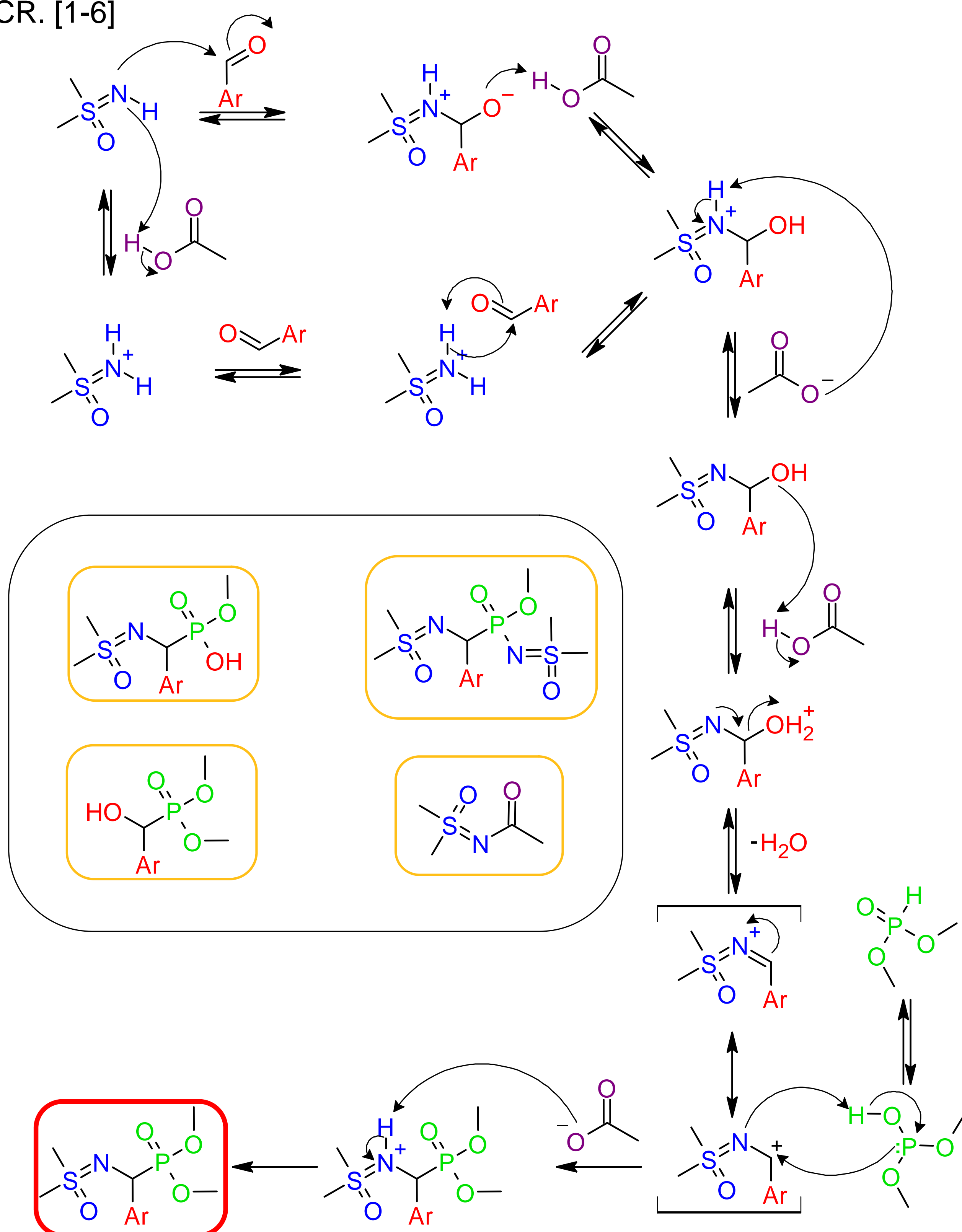
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Objectives

Our research focuses on the technologies that give access to new, more 'sophisticated' chemical space and to the intensive research on novel functional groups that can improve the characteristics of the investigative agents. Within the project we are expanding yet largely unexplored chemical space of drug-like sulfoximine class and by widening scope of multicomponent reactions which are important tools in modern drug discovery, as they proceed with high atom economy and use simple, one-pot procedures, which makes them suitable for time- and cost-efficient tools for generating investigative new compounds for drug discovery. We present current results of optimization as well as scope and limitation of one of important types of multicomponent reactions - Kabachnik-Fields MCR. [1-6]



The postulated mechanism of the formation of **product** and determined **side reactions products**.

Results

We completed the optimization of model Kabachnik-Fields reaction. We implemented the developed protocols to the synthesis of diversity-oriented set of novel sulfoximine-based class of compounds. Broadening of the scope of reactions is still in progress.

Conclusions

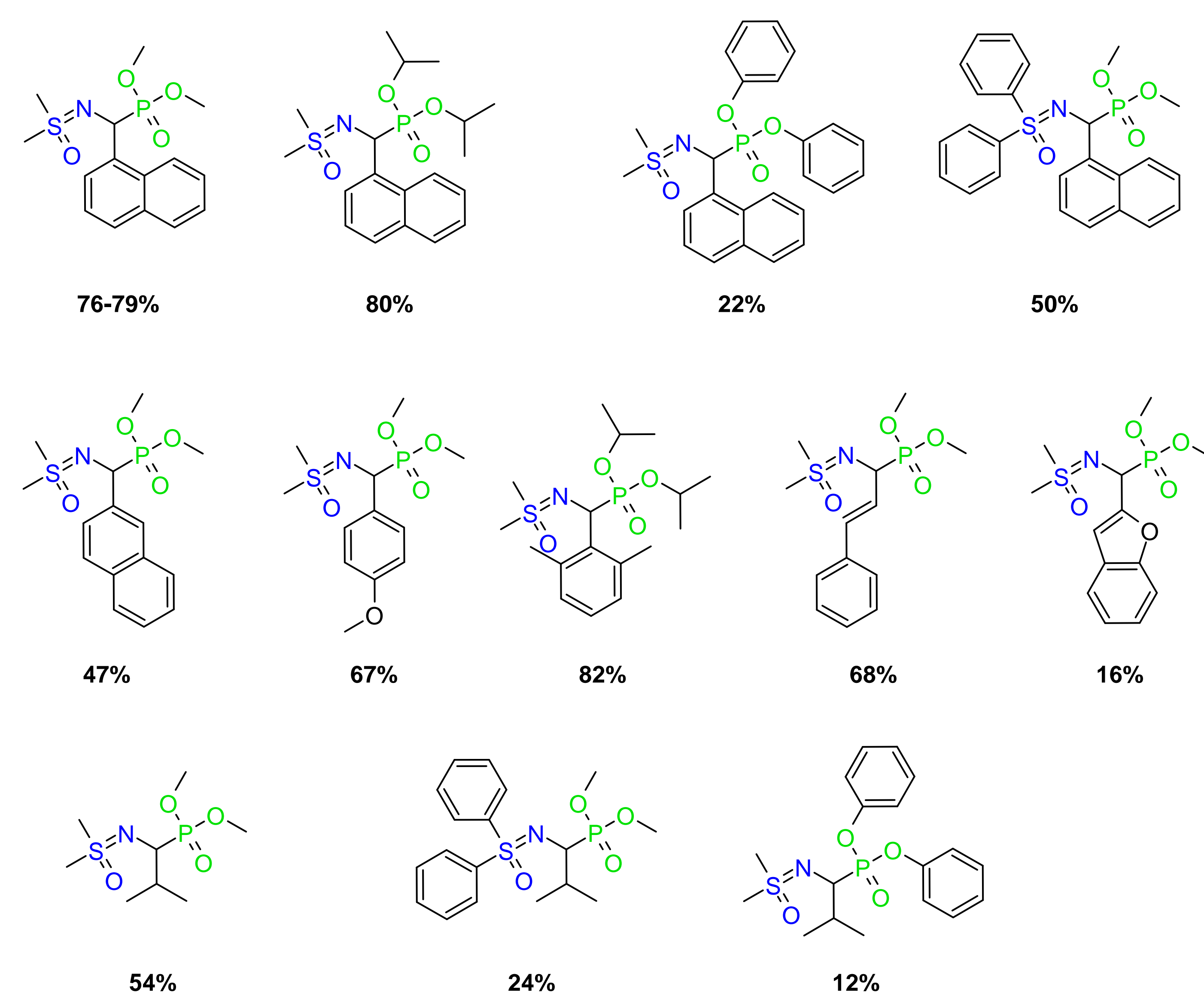
Kabachnik-Fields is a robust and versatile tool for obtaining new sulfoximine scaffold of potential use in medicinal chemistry and chemical biology.

Materials and Methods

We used a large set of commercially available substrates: sulfoximines, carbonyl compounds, organophosphites and acetic acid as efficient catalyst. The products were isolated using standard chromatography (normal and reverse-phase) methods, identified and characterized using LC-MS and NMR techniques.

The optimisation of model reaction (0.5 mmol scale)

entry	sulfoximine [equiv]	carbonyl compound [equiv]	phosphorus reagent [equiv]	additive(s) [equiv]	solvent	T [°C]	t [days]	product(s)/ yield [%]
1	1	1	1	-	-	rt	8	32
2	1	1	1	-	MeOH	60	2	17
3	1	1	1	-	CHCl ₃	60	2	14
4	1	1	1	Et ₃ N	-	60	2	-
5	1	1	1	17.5 (AcOH)	-	60	2	43
6	1	1	1	-	-	60	2	45
7	1	1	1	-	-	80	1	50
8	1	1	1	1	-	80	1	63
9	1	1	1	1 + molecular sieves	-	80	1	48
10	2	1	2	1	-	70	1	82
11	1	2	2	1	-	70	1	71
12	1.5	1	1.5	1	-	60	2	79
13	1.5	1	1.5 P(OMe) ₃	1	-	60	2	76



The examples of obtained compounds using mainly **general method**.

References

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