Design and synthesis of triazole-chalcones.

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INTRODUCTION

Chalcones are important natural products and can also be synthesized by aldol condensation reactions. These compounds have been reported to have a broad range biological activities such as antimalarial, antibacterial, antitumor, antioxidant, antihyperglycemic and anti-HIV[1]. Computational approach suggested that chalcones are potential plasmodial cysteine protease inhibitors[2].

The triazole products are more than just passive linkers; they readily associate with biological targets, through hydrogen bonding and dipole interactions.

We describe the synthesis of new chalcones derivatives bearing a 1,2,3-triazole moiety as a new potential antimalarial agents.

RESULTS AND DISCUSSION

The proposed route is shown below:

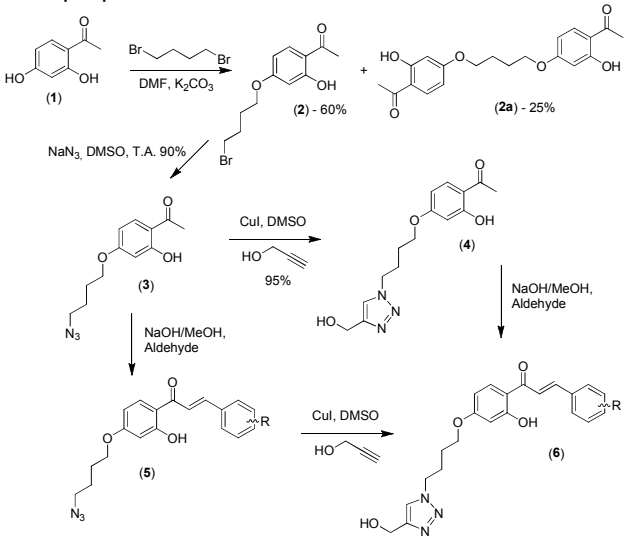

Figure 1. Route used for synthesis of novel chalcones derivatives carrying 1,2,3-triazole moiety.

Bromide (**2**) was easy prepared from (**1**) in 60% yield with formation of dimer (**2a**) and other products of alkylation in position 2. In next step bromide (**2**) was substituted with azide group. From this point two strategies were discussed. Compound (**4**) were obtained from (**3**) in high-yield (95%) under 1,3-dipolar cycloaddition with propargyl alcohol using CuI in DMSO. Aldol condensation of (**3**) or (**4**) with different aromatic aldehydes give the corresponding chalcone derivatives (**5**) or (**6**) with yield ranges from moderate to good as shown in Table 1.

Table 1. Yields of aldol and cycloaddition reactions

R	(4) → (6)	(3) → (5)	(5) → (6)
H	60%	49%	88%
4-Cl	50%	80%	87%
2,3-Cl	52%	68%	91%
4-OMe	56%	52%	81%
4-OEt	59%	45%	89%
3-OMe-4-OBu	40%	77%	83%
4-OH	44%	-	-
3-OH	70%	-	-
4-OBu	48%	69%	83%
3-OBu	42%	64%	86%

CONCLUSION

The compounds were synthesized and successfully characterized. The chalcones derivatives are under evaluation for their antiplasmodial activity and soon will be possible to study the structure-activity relationship.

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