

## Cross-Coupling Reaction of Organotellurides with Grignard Compounds Catalyzed by MnCl<sub>2</sub>/CuI

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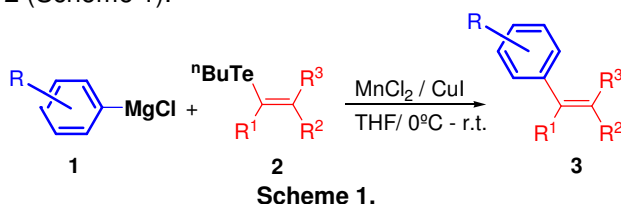
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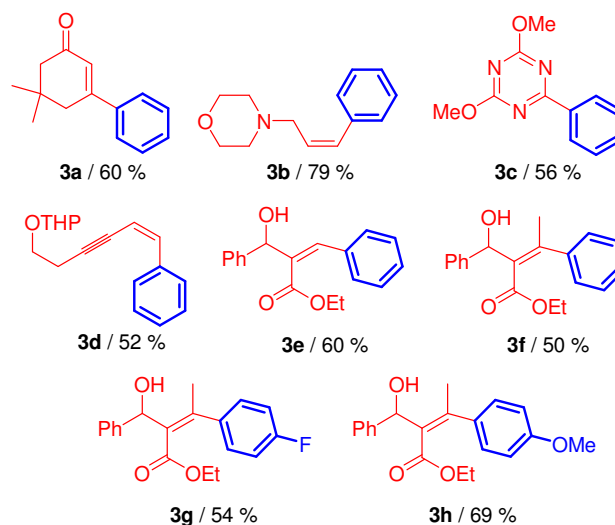
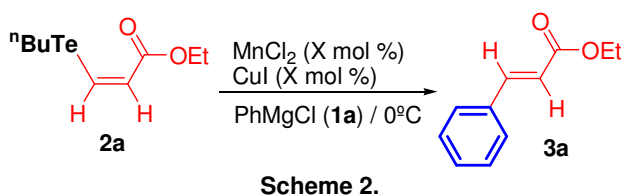
### INTRODUCTION

Vinyl tellurides are useful intermediates in organic synthesis.<sup>1</sup> These compounds have been employed for carbon-carbon bond formation by reaction with organometallics catalyzed by Pd, Ni and Fe species.<sup>1b</sup> In this work, we describe the use of MnCl<sub>2</sub>/CuI as catalysts to promote the coupling reaction of Grignard reagents **1** with vinyl tellurides **2** (Scheme 1).



### RESULTS AND DISCUSSION

The vinyl telluride (**2a**) and phenyl magnesium chloride (**1a**) were employed as model compounds to determine the best reaction conditions. The use of MnCl<sub>2</sub> (20 mol %) or CuI (20 mol %) alone promotes the cross-coupling reaction in low yield (10 % and 30 % respectively). When a mixture of MnCl<sub>2</sub>/CuI (20/20 or 10/10 mol %) was used, the homo-coupling reaction of the Grignard reagent (**1a**) was observed. This side reaction was suppressed by using 5 mol % of each metal salt (MnCl<sub>2</sub>/CuI). Under this conditions the product (**3a**) was obtained in 78 % yield. As can be observed in Scheme 2 an inversion of the olefin configuration was observed. The above conditions were employed to promote the cross-coupling of others Grignard reagents **1** and vinyl tellurides **2** giving the products in 50-79 % yields as can be observed in Scheme 3.



Scheme 3.

### CONCLUSION

We have developed an efficient catalytic procedure to cross-coupling Grignard reagents with vinyl tellurides using MnCl<sub>2</sub>/CuI as the catalysts.

### ACKNOWLEDGEMENTS

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### REFERENCES

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