Current Chemistry Letters 7 (2018) 9–16

Contents lists available at GrowingScience

Current Chemistry Letters

homepage: www.GrowingScience.com

Modifications of total synthesis of mycophenolic acid

Grzegorz Cholewinski*, Magdalena Malachowska–Ugarte, Agnieszka Siebert, Michał Prejs and Krystyna Dzierzbicka

Department of Organic Chemistry, Gdansk University of Technology, str G. Narutowicza 11/12, 80-233 Gdansk, Poland

C H R O N I C L E

Article history:
Received November 14, 2016
Received in revised form
January 10, 2018
Accepted January 12, 2018
Available online
January 12, 2018

Keywords:
Mycophenolic acid
Immunosuppressants
Claisen rearrangement
Oxidation
Total synthesis

A B S T R A C T

The total synthesis of mycophenolic acid (MPA), a potent immunosuppressant, was modified. The obtained mycophenolic acid was suitable for further preparation of new prospective immunosuppressants with improved therapeutic properties.

© 2018 Growing Science Ltd. All rights reserved.

1. Introduction

Mycophenolic acid (MPA) is an immunosuppressive drug widely applied in prophylaxis of organ transplant rejection.[1-6] However, the risks of rejection and side effects in the course of clinical treatment were not eliminated. As a result, numerous MPA modifications together with their biological evaluations were reported.[7-18] Although MPA is produced in industrial scale via fermentation processes,[19] its price for laboratory scale is still high. In the chemical literature are described attempts of total synthetic MPA from commercially available substrates. Some of them enable to prepare MPA analogs which are difficult to obtain by a modification of starting MPA molecule, since the structure of target derivative can be altered at the relevant synthetic stages.

In our research we decided to prepare some new MPA derivatives for examination of their immunosuppressive activity. For this purpose we choose Patterson's synthetic strategy as the most convenient one for obtaining of MPA in several grams scale.[20-22] In this article we report implemented in our work practical modifications of MPA synthesis.

* Corresponding author. Tel.: +48-58-347-23-00
E-mail address: grzchole@pg.edu.pl (G. Cholewinski)
2018 Growing Science Ltd.
doi: 10.5267/j.ccl.2018.01.001