1. Introduction

Acrolein (2-propenal) is the simplest unsaturated aldehyde, with a high synthetic and technical potential due to the conjugation of the carbonyl group with a vinyl group. Acrolein is widely used as an intermediate in the production of building materials, herbicides and algaecides, water treatment chemicals, and essential amino acids like methionine used as supplementary in fodder, especially for poultry. At low concentrations, it finds also application for producing chemical products, where the double dehydration of glycerol to acrylic acid, acetaldehyde, acetic acid, carbon monoxide, and carbon dioxide is one of the proposed routes for glycerol valorization. This has been turned into an interesting starting raw material for others chemical products, where the double dehydration of glycerol to acrolein is one of the proposed routes for glycerol valorization. This field of studying has attracted the attention of numerous research groups and in fact, recently, a critical review of acrolein production from glycerol has been released [4].

The dehydration reaction of glycerol yielding acrolein is known from the hydrolysis of animal fats and vegetable oils. Due to the incessant increment of the worldwide production of biodiesel, the production of glycerol, a by-product of the biodiesel industry, has notably increased causing a drop in its price. In this way, glycerol has been turned into an interesting starting raw material for other chemical products, where the double dehydration of glycerol to acrolein is one of the proposed routes for glycerol valorization. This field of studying has attracted the attention of numerous research groups and in fact, recently, a critical review of acrolein production from glycerol has been released [4].

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