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A new chemiluminescence method for determination of clonazepam and diazepam based on 1-Ethyl-3-Methylimidazolium Ethylsulfate/copper as catalyst

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1 **A new chemiluminescence method for determination of clonazepam and diazepam**
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9

10 **Abstract**

11 A novel chemiluminescence (CL) reaction, benzodiazepines-H₂O₂-1-Ethyl-3-
12 Methylimidazolium Ethylsulfate/copper, for determination of clonazepam and diazepam at
13 nanogram per milliliter level in batch-type system have been described. The method relies on
14 the catalytic effect of 1-Ethyl-3-Methylimidazolium Ethylsulfate/copper on the
15 chemiluminescence reaction of benzodiazepines, the oxidation of benzodiazepines with
16 hydrogen peroxide in natural medium. The influences of various experimental parameters
17 such as solution pH, the ratio of 1-Ethyl-3 Methylimidazolium ethylsulfate concentration to
18 copper ion, the type of buffer and the concentration of CL reagents were investigated. Under
19 the optimum condition, the proposed method was satisfactorily applied for the determination
20 of these drugs in tablets and urine without the interference of their potential impurities.

21

22 Keywords: Chemiluminescence; clonazepam; diazepam; benzodiazepine; ion liquid;
23 hydrogen peroxide

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25 **1. Introduction**

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