



بسم الله الرحمن الرحيم

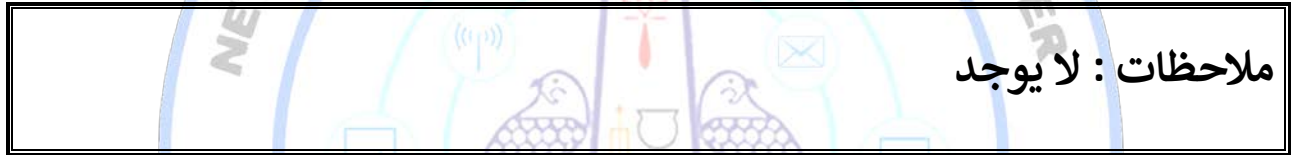
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مسئولية عن محتوى هذه الرسالة.

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Radiolabeling, Chemical and Biological Evaluation of Some Drugs for Nuclear Medicine Applications

Thesis

Submitted for the Degree of PhD in Chemistry

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم العظيم

صدق الله العظيم

سورة البقرة الآية: ٣٢



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Fatma Elzahraa Hafez



EGY.ASE Studies

Dear Author(s)

The journal editorial board hereby informs you with pleasure that your submitted article entitled “**Radiolabeling, chemical and biological evaluation of Lidocaine in nuclear medicine application**”.

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Regards

Ass. Prof Nour Eldeen Ahmed Abd ElSatar

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List of Abbreviations

BDH.....	British Drug Houses
CAT	Chloramine-T
CT	Computed tomography
EC	Electron capture
Epin	Epinephrine
FDG	Fluorodeoxyglucose
fMRI	Functional magnetic resonance imaging
HPLC.....	High-performance liquid chromatography
IT	Isomeric transition
LET.....	Linear energy transfer
Lido.....	Lidocaine
NODCAR.....	National Organization for Drug Control and Research
PET.....	Positron emission tomography
SG-TLC	Silica gel thin-layer chromatography
SPECT.....	Single-photon emission computed tomography
Vera	Verapamil

ABSTRACT

Candidate Name: Fatma ELzahraa Ahmed Mohamed Hafez

Title of Thesis: Radiochemical and Biological Characterization of some Radiolabeled Drugs for Nuclear Medicine Applications

Degree (PhD): The PhD of Science in Chemistry, Faculty of Science, Ain Shams University, 2022.

This study aims to develop potential radiopharmaceuticals for non-invasive cardiac imaging by exploiting the advantages of drugs that can act on the heart. Lidocaine hydrochloride, Verapamil hydrochloride and Epinephrine were successfully labeled with radioactive iodine (^{125}I) using Chloramine-T via an electrophilic substitution reaction. ^{125}I -Lidocaine, ^{125}I -Verapamil, and ^{125}I -Epinephrine gave maximum labeling yields of $93.2\% \pm 0.1$, $95.4\% \pm 0.4$ and $96\% \pm 0.8$, respectively. Biodistribution studies showed that the maximum uptake of radioidonated Lidocaine, Verapamil of mice was 19.8% and 18.3% , respectively, at 60 min post injection while the maximum uptake of radioidonated Epinephrine was 18.6% at 180 min post injection.

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ABSTRACT

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Keywords: Radiopharmaceuticals, Radioiodination, Lidocaine, Verapamil, Epinephrine, Heart imaging, Biodistribution.