



Preparation of $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ Generator and Labeling of Some Organic Compounds with Technetium-99m

A thesis submitted by

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*Dedicated to
my mother
my lovely wife
my daughters Mennh and Tasneem
my son Mohamed
and the rest of my family*

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List of abbreviations

Tc	Technetium element
^{99m}TcO₄⁻	Free pertechnetate
EC	Electron capture
IT	Isomeric transition
ITLC	Instant thin layer chromatography
KeV	Kilo electron volt
MAG₃	Mercaptoacetyl-glycylglycine
MeV	Million electron volt
MBq	Mega Becquerel
NaBH₄	Sodium borohydride
PET	Positron emission tomography
SPECT	Single photon emission computed tomography
R_t	Retardation time
NaBH₄LP	Sodium borohydride labeling procedures
SF	Solvent front
T_{1/2}	Physical Half life time
T_b	Biological Half life time
T_e	Effective half life time
RH-^{99m}Tc	Reduced hydrolyzed-Technetium-99m (colloid)
R_f	Retardation factor
B	Beta particles
A	Alpha particles
γ	Gamma emission
°C	Celsius
Ce	Cerium element
Ci	Curie
F	Fission
h	Hour
HPGe	High purity germanium

ID	Internal diameter
IR	Infra red
MEK	Methyl ethyl ketone
Min	Minute
Mo	Molybdenum element
Msec	Millisecond
S	Second
Id	Inside diameter
XRD	X-ray diffraction
XRF	X-ray fluorescence
CeMo	Cerium molybdate gel
TBq	Tera Becquerel
GBq	Giga Becquerel
M	Molar
min.	Minute
A	Year
AR	Analytical grade