ივანე ჯავახიშვილის სახელობის თბილისის სახელმწიფო უნივერსიტეტი ზუსტ და საბუნებისმეტყველო მეცნიერებათა ფაკულტეტი

მეორე სამეცნიერო კონფერენცია

ი.ჩიკვაიძე, შ.სამსონია, მ.ტრაპაიძე, ნ.თარგამაძე, დ.ყაჯრიშვილი, ნ.ნარიმანიძე

თბილისი - 2014

ახალი ინდოლშემცველი სისტემები: სინთეზი, თვისებები, შჩვეულო რეაქციები, მექანიზმები

თსუ ქიმიის დეპარტამენტი
ორგანული ქიმიის კათედრა,
ორგანული ქიმიის ინსტიტუტი

2

ნ.ჩიკვაიძე

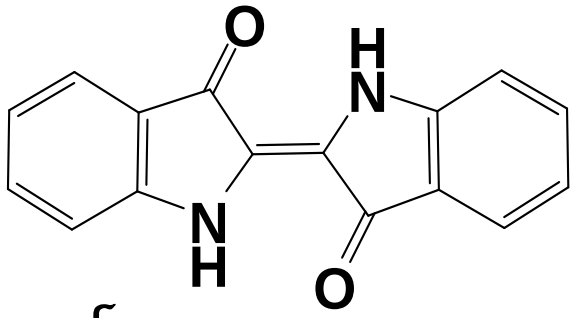
შ.სამსონია

მ.ტრაპაიძე

დ.ყაჯრიშვილი

ი.ჩიკვაიძე

ნ.ნარიმანიძე



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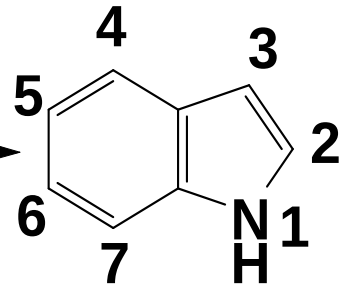

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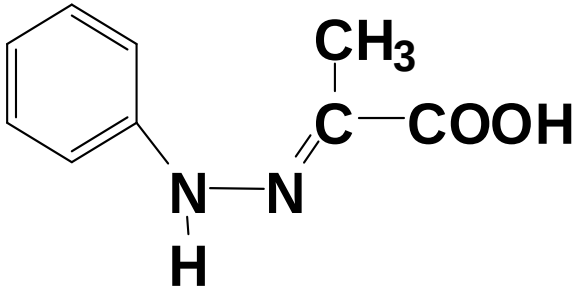
ა.ბაიერი



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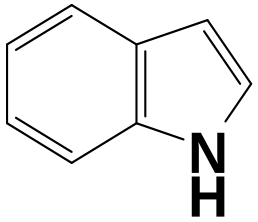
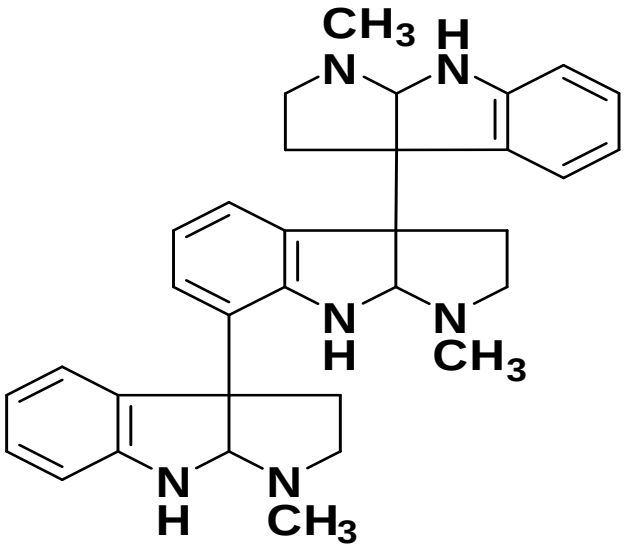
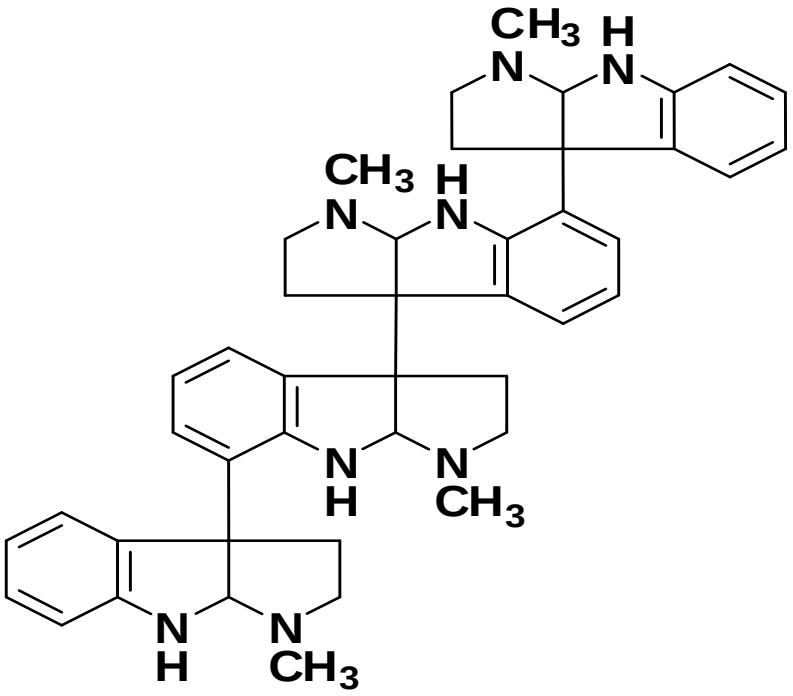


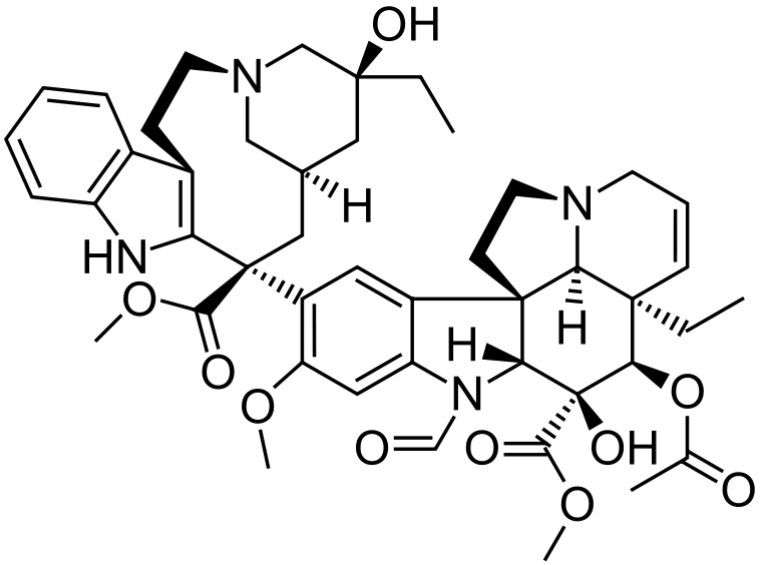
ე.ფიშერი

ცნობილია <u>4000-ზე</u> მეტი ბუნებრივი ინდოლური ალკალოიდი. მათგან <u>რამდენიმე ასეული ორ და მეტ</u> ინდოლის ბირთვს შეიცავს, მაგ. ვინკრისტინი.
უფრო <u>მეტია β-კარბოლინის</u> ნაწარმები.

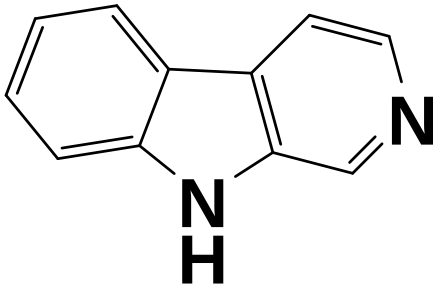
4



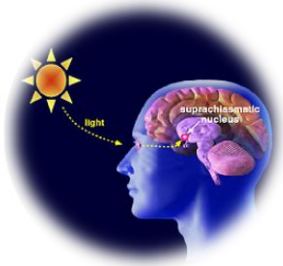


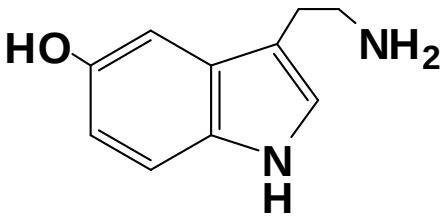


ვინკრისტინი *Vinca rosea*



β-კარბოლინი





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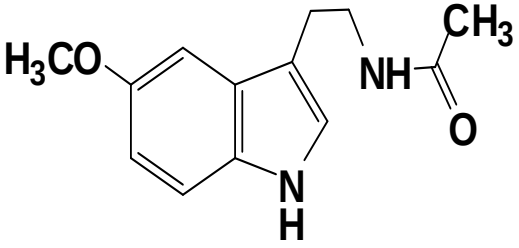

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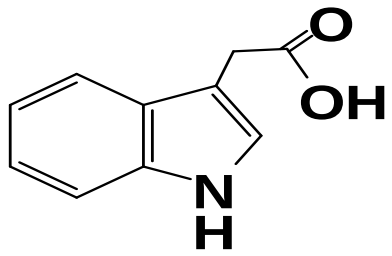

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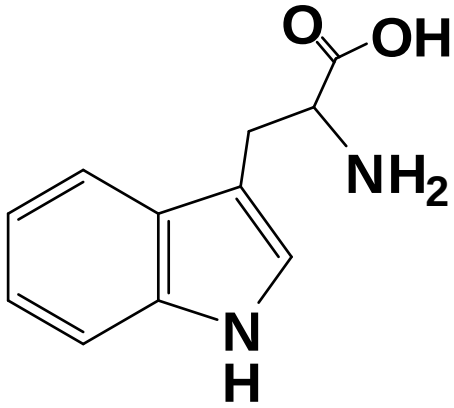

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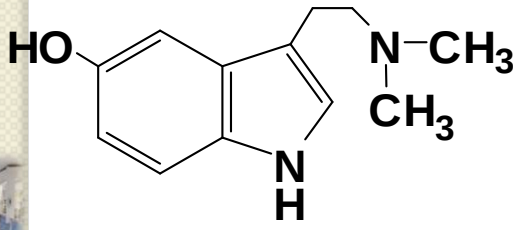

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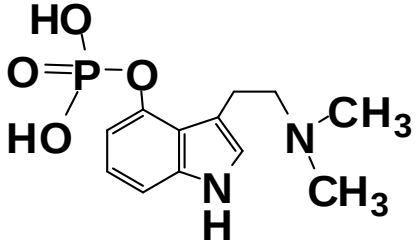

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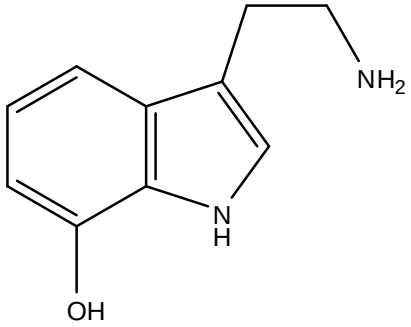

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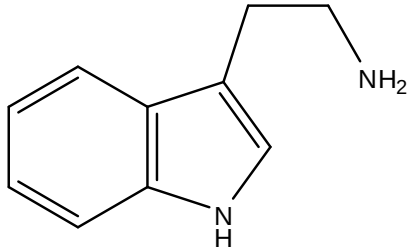

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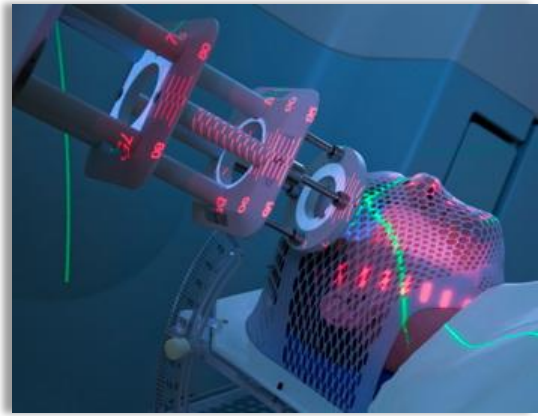

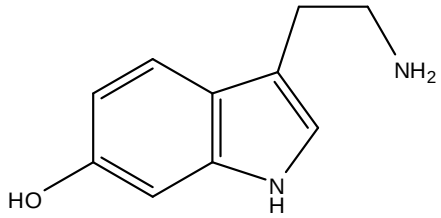

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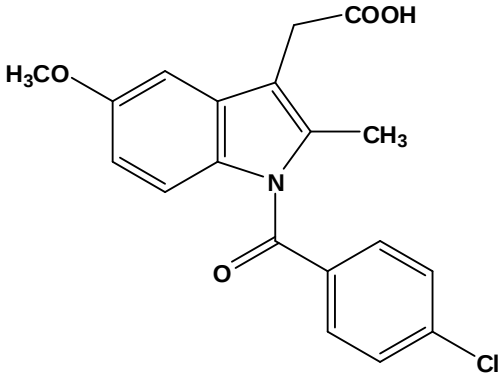

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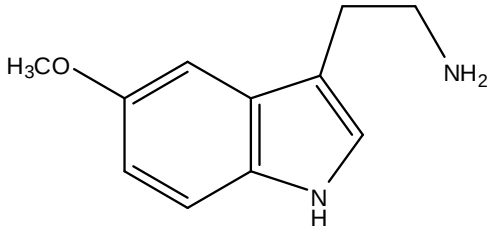

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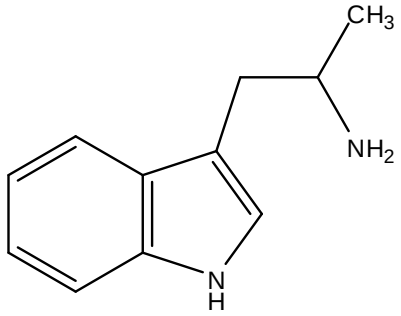

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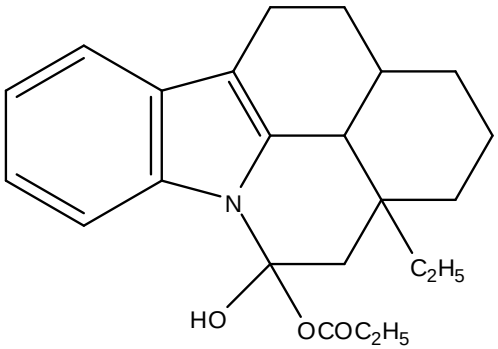

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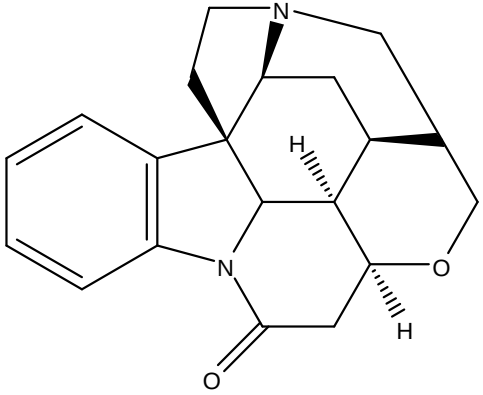

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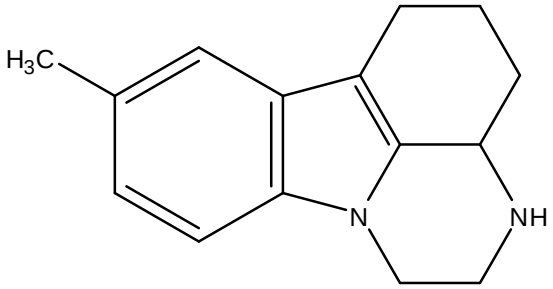

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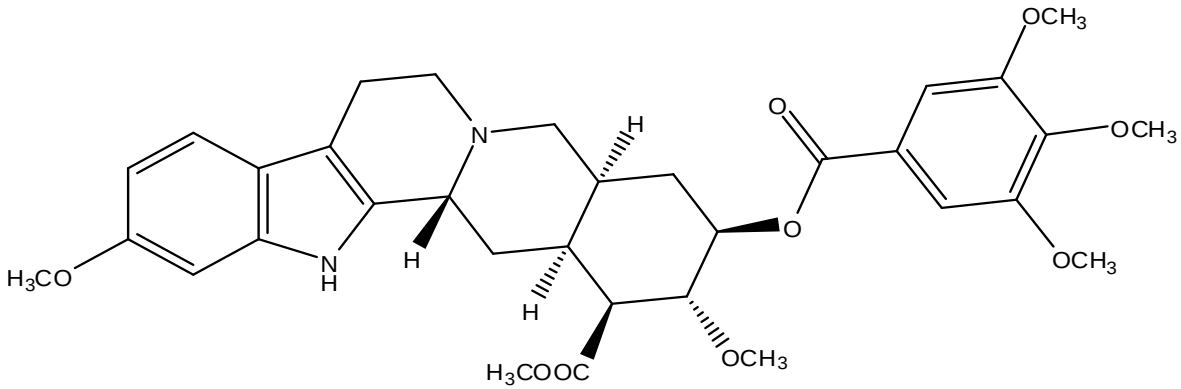

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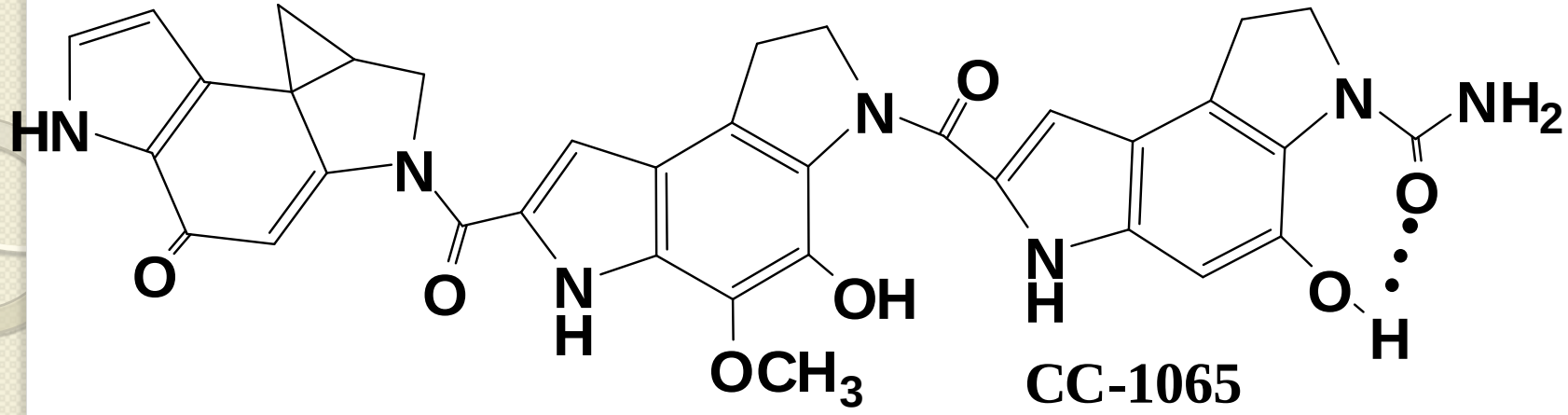
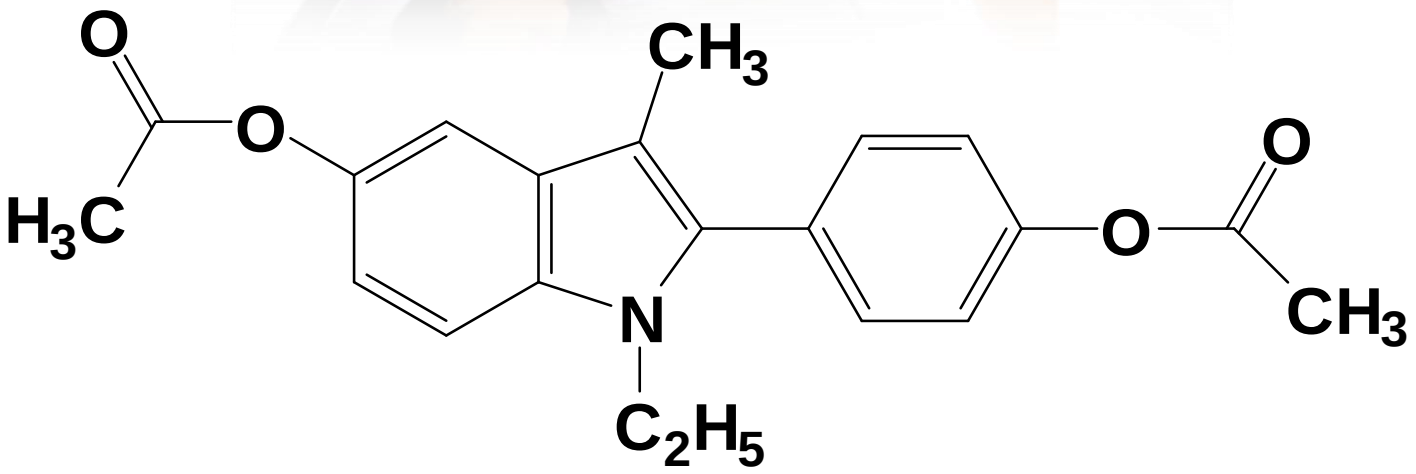


CC-1065

Streptomyces zebensis

9



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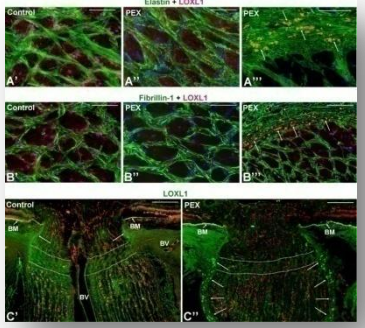

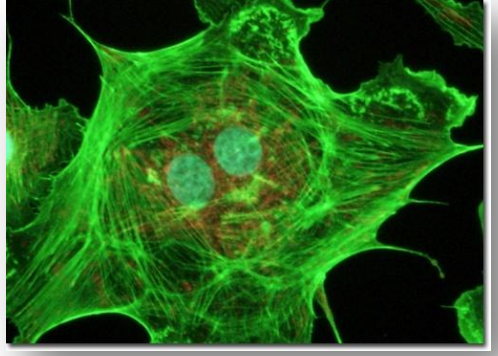

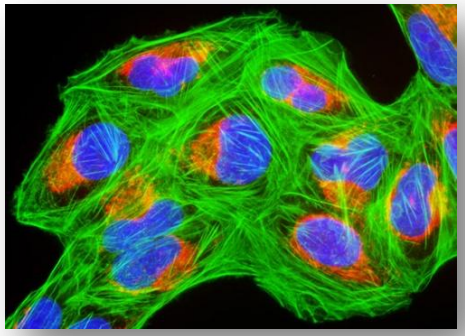

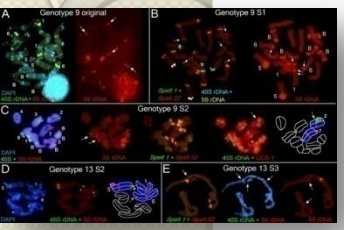

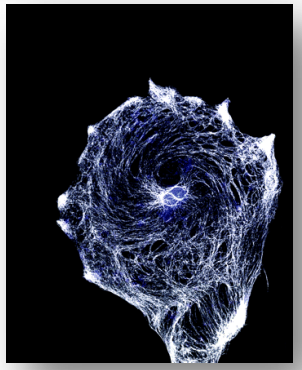

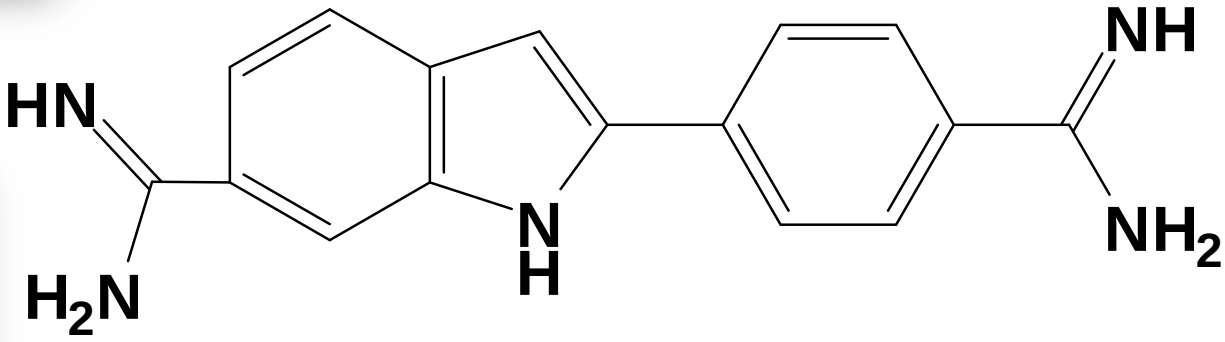

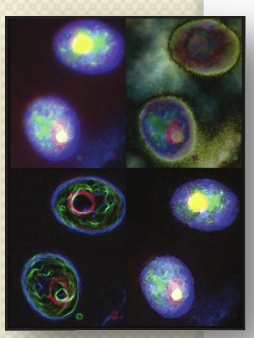

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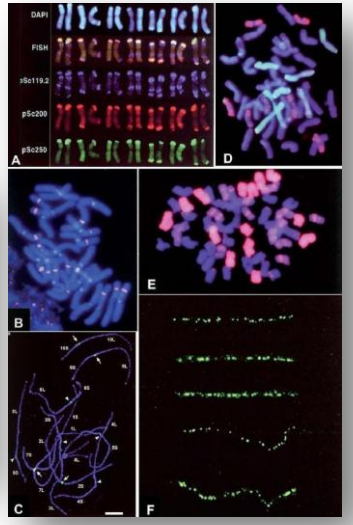

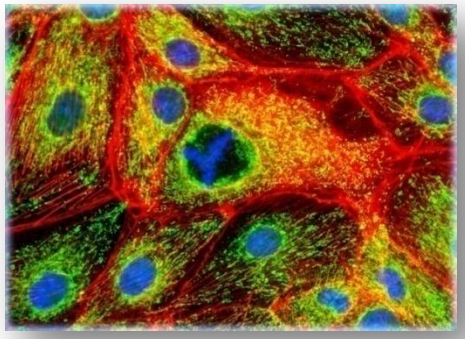

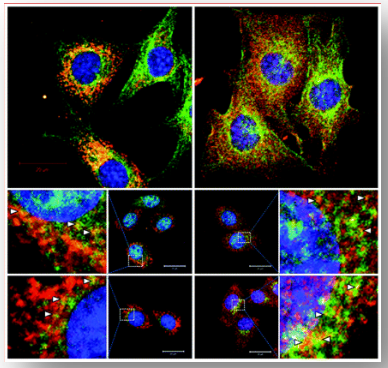

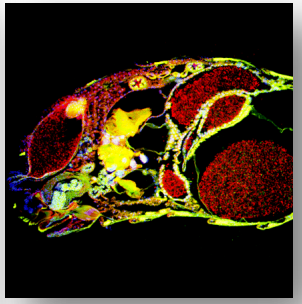

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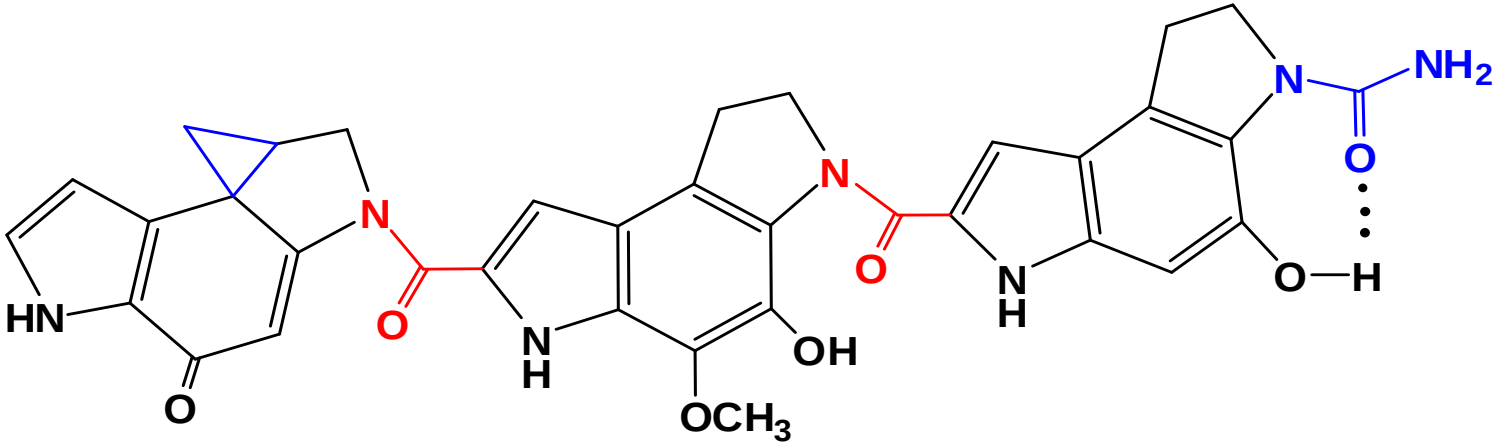
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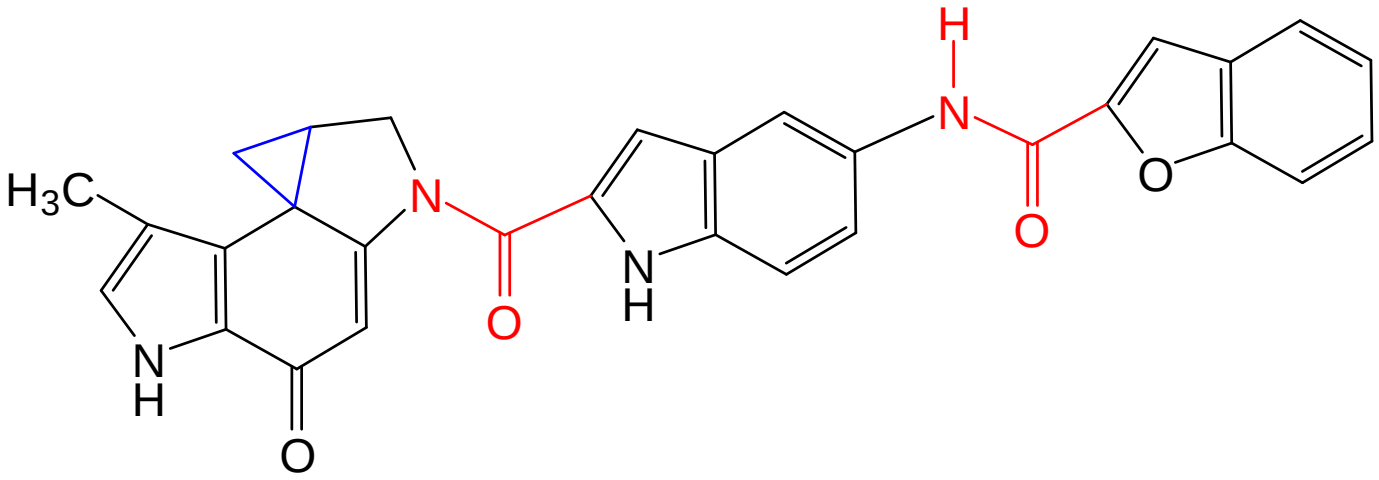
OCH3
N
H
O
H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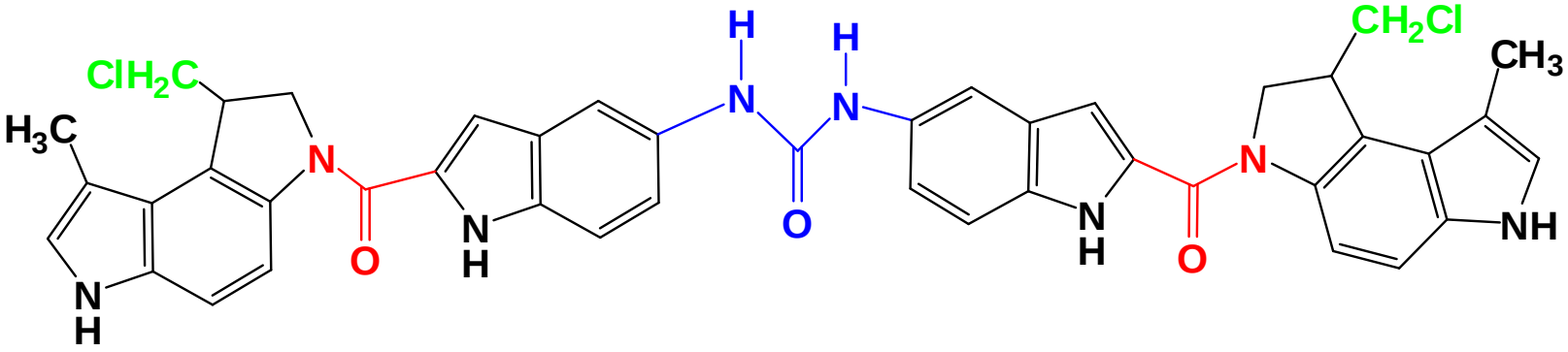
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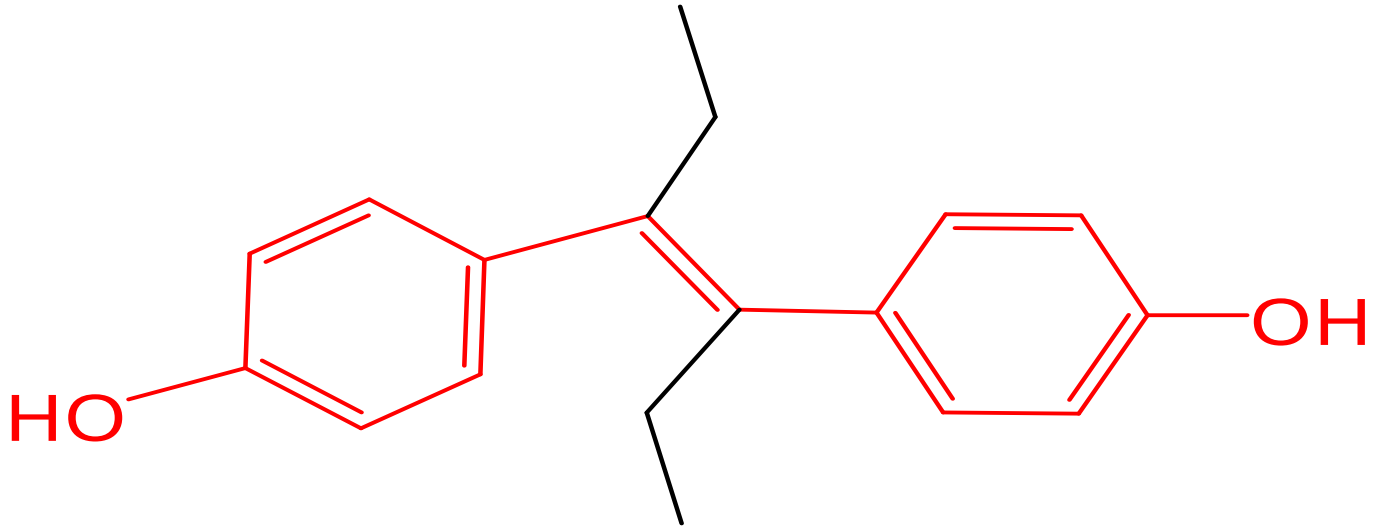
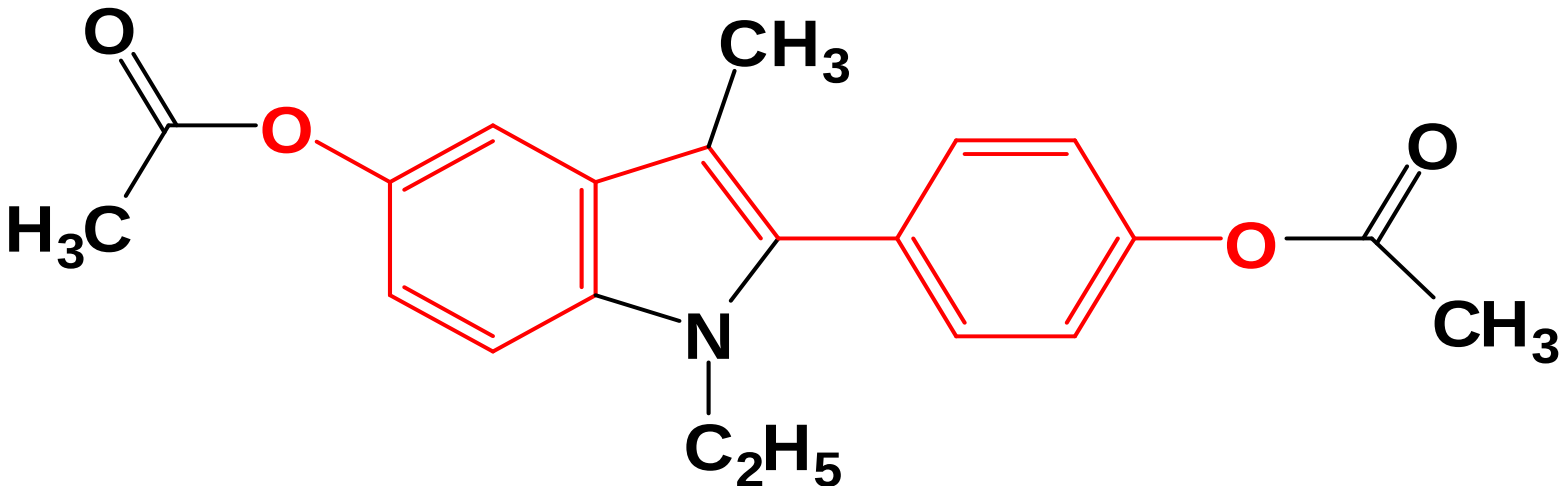
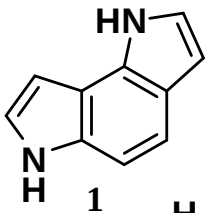


დიეთილსტილბესტროლი



D-16726

4’,5-დიაცეტოქსი-1-ეთილ-3-მეთილ-2-ფენილინდოლი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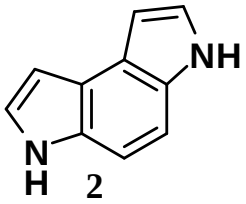
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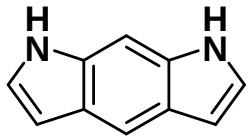
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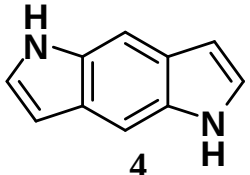
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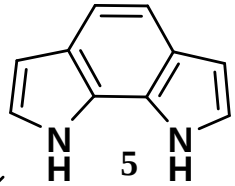
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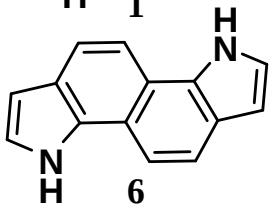
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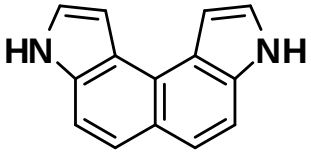
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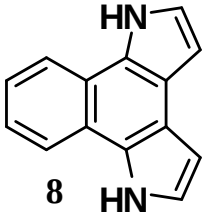
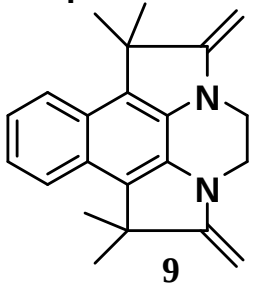
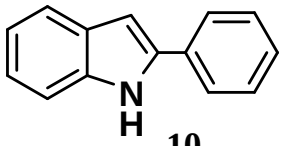

8


9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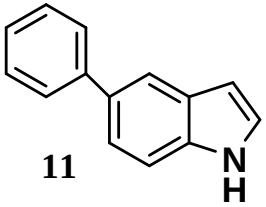
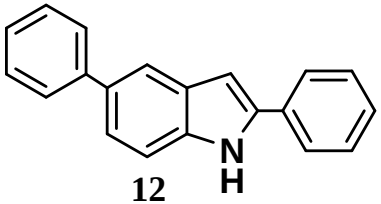
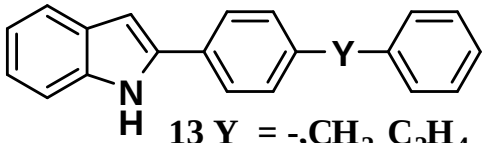
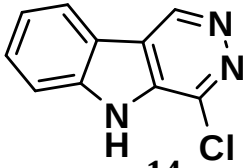
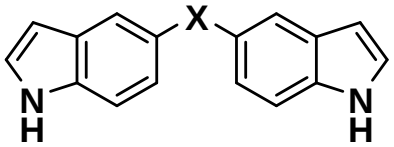
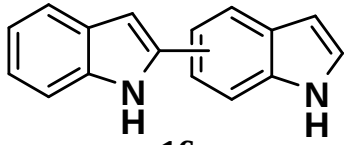

11

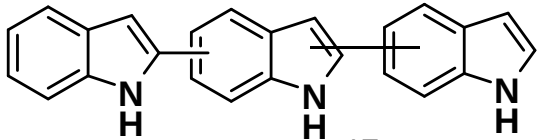

12

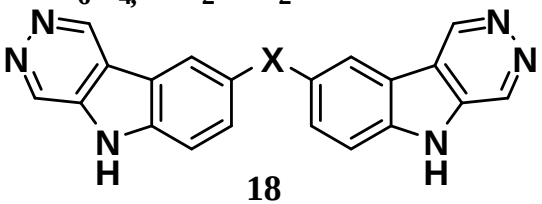

13 Y = -,CH_2, C_2H_4


14


15 X= -,CH_2, O,S,SO_2, C_6H_4, CH_2-CH_2 ...


16


17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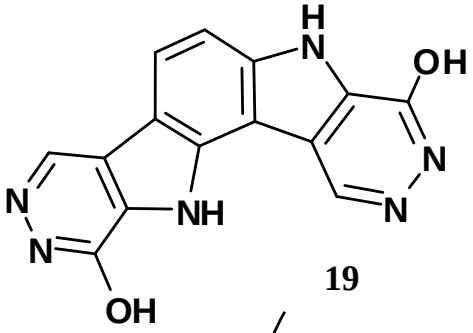
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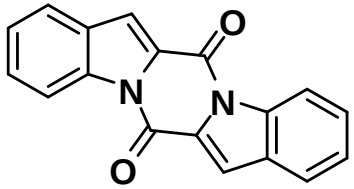
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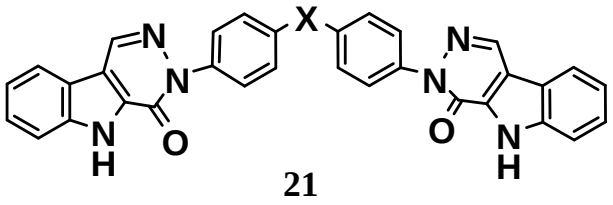
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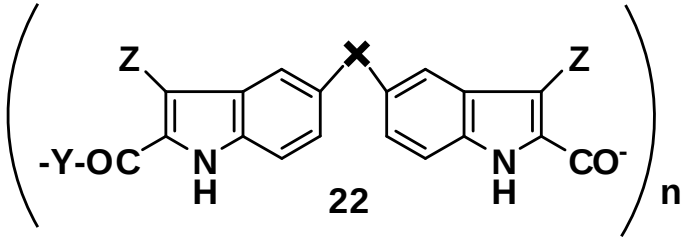
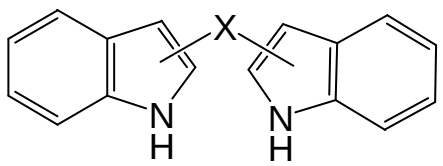
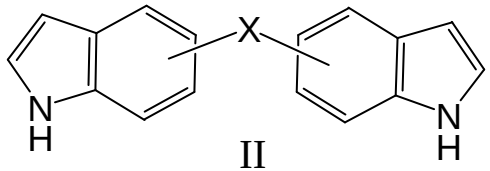
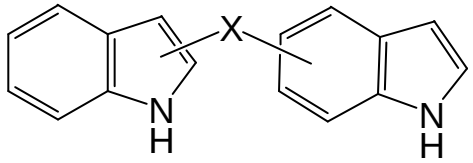

22



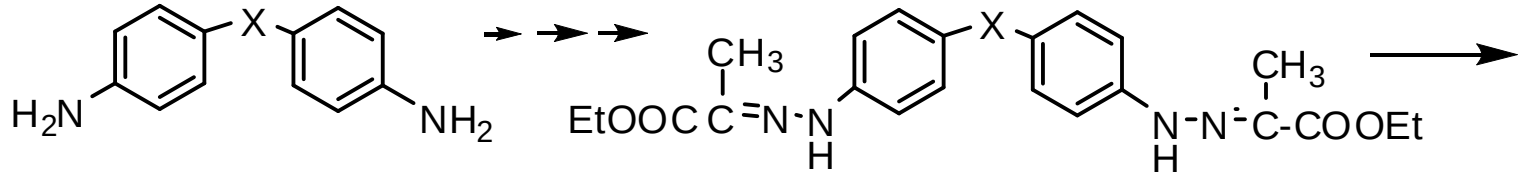
I

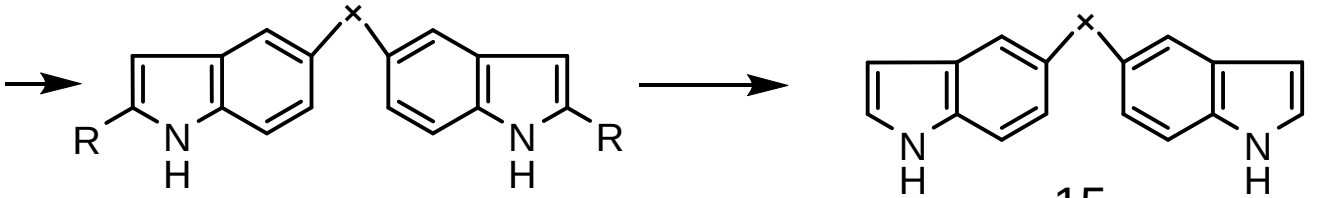


II



III

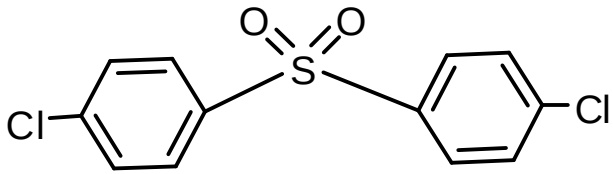




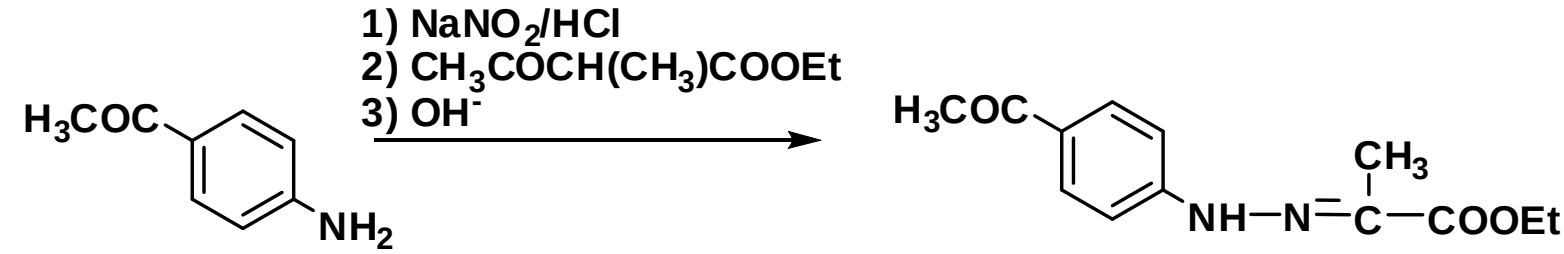
15

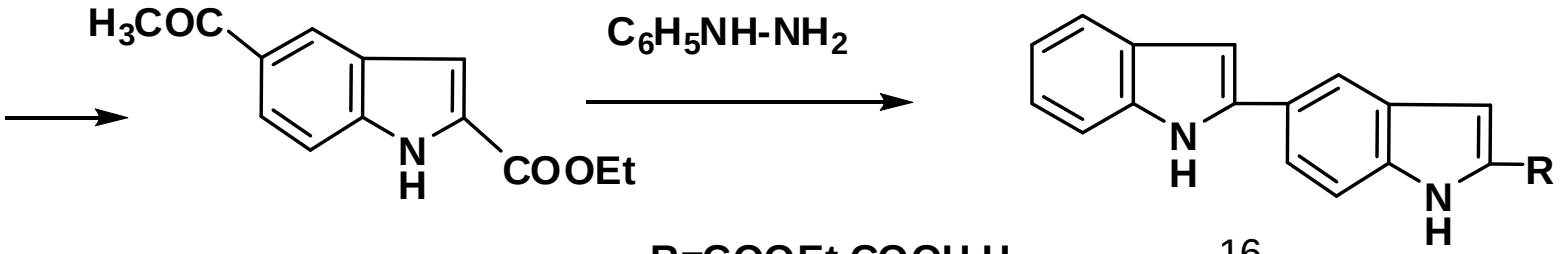
X= -,O,CH_2,C_2H_4 CH=CH,C_6H_4,S,SO_2;

R=$COOC_2H_5$,COOH



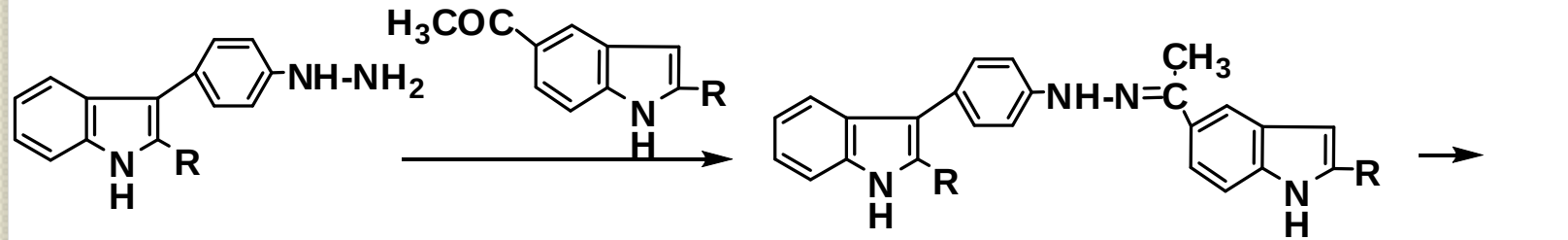
15



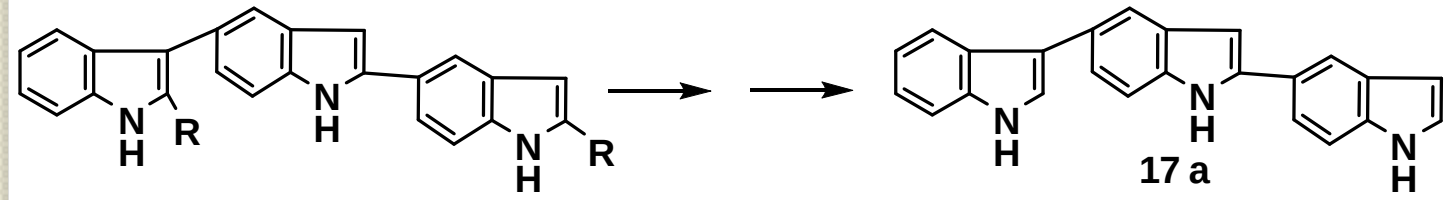


R=COOEt,COOH,H

16

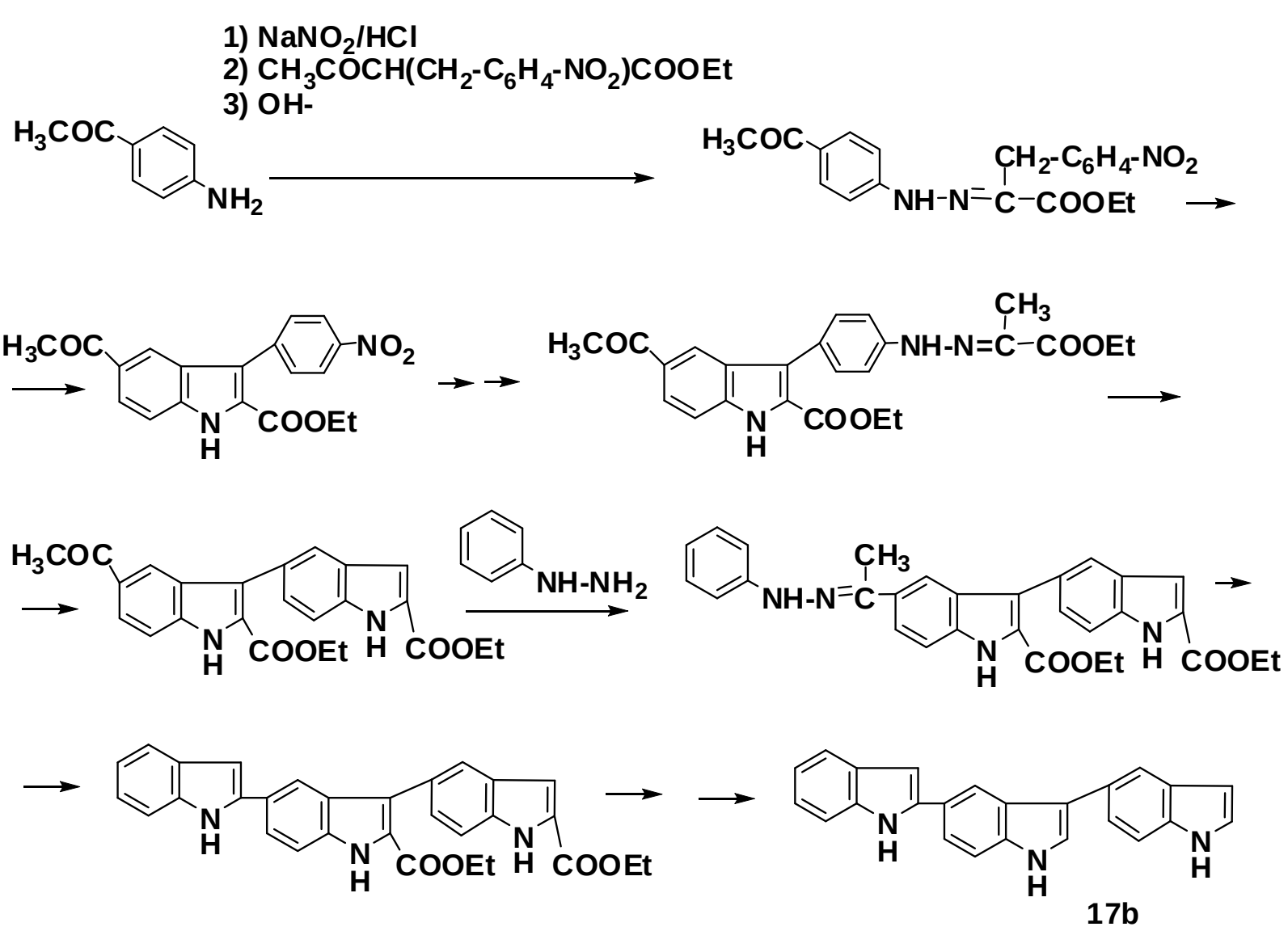


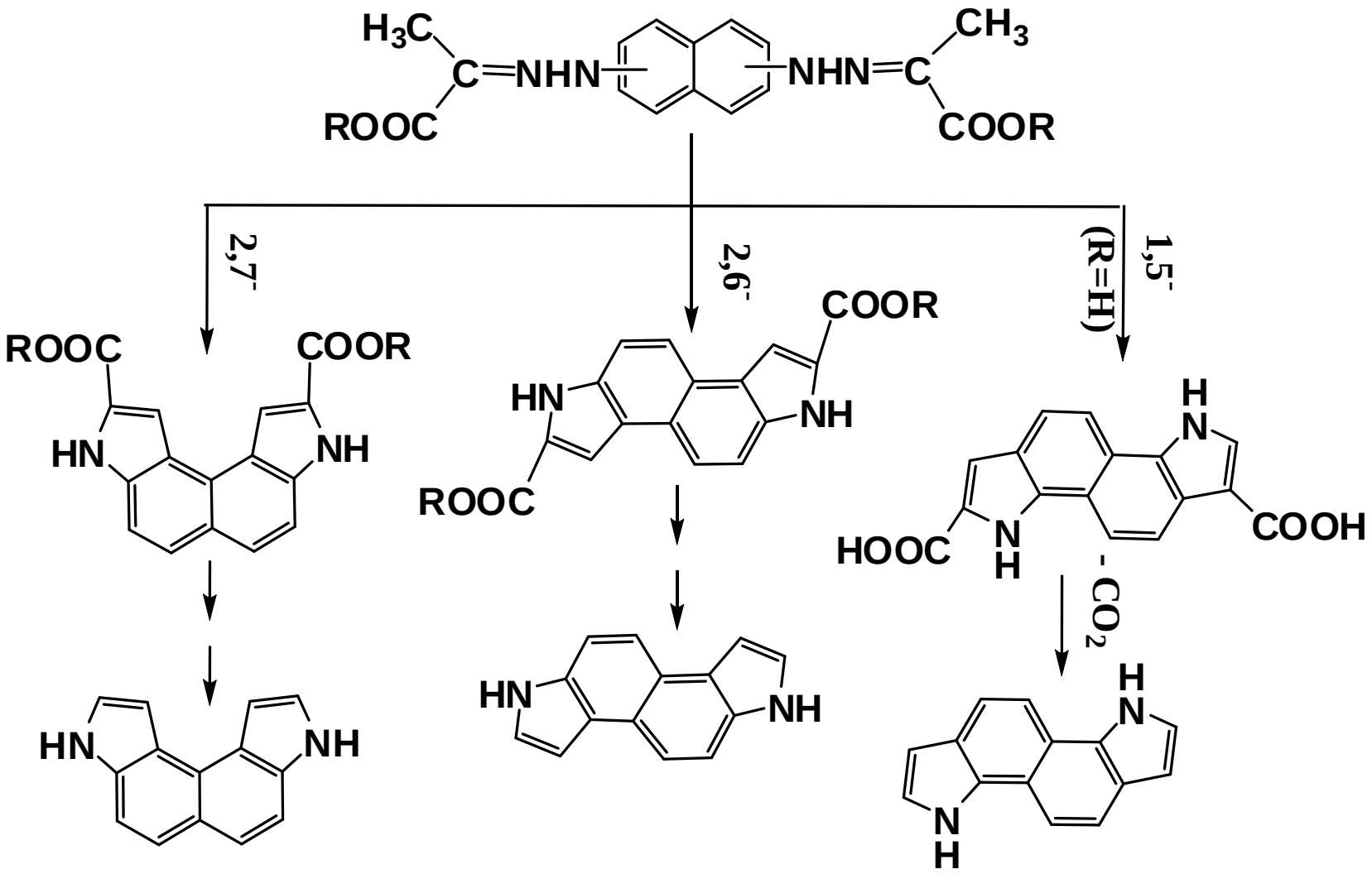
R=COOEt,

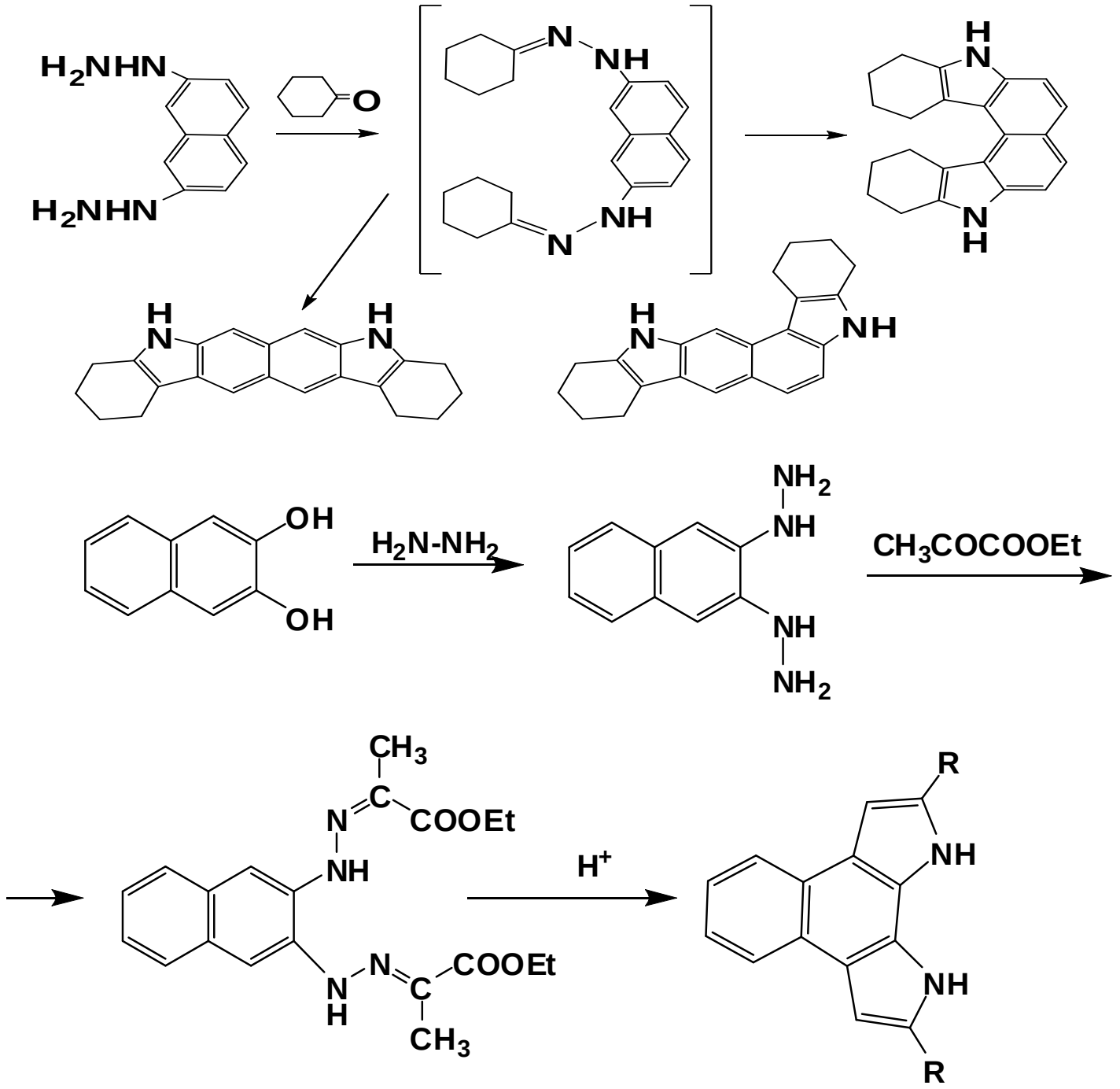


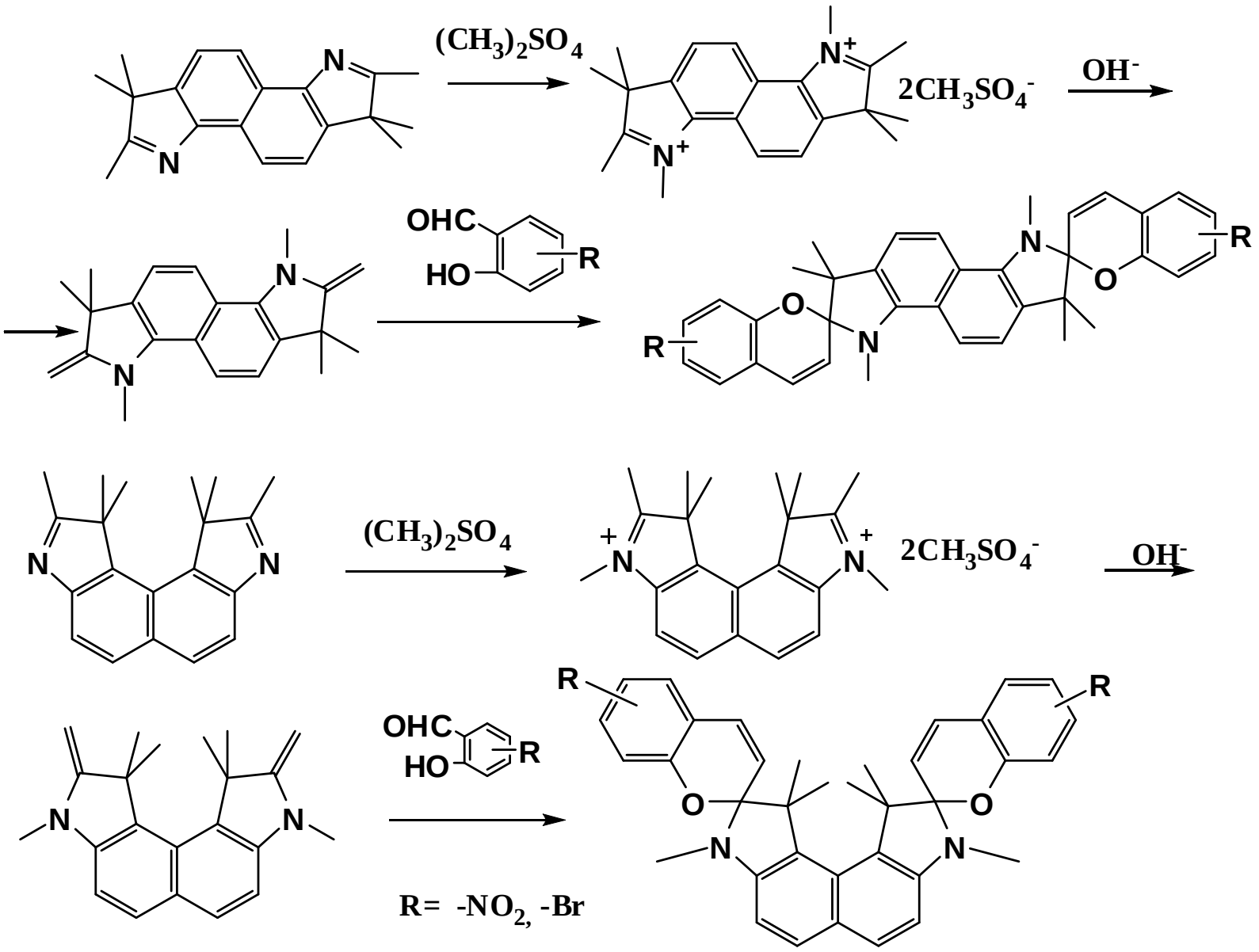
17 a

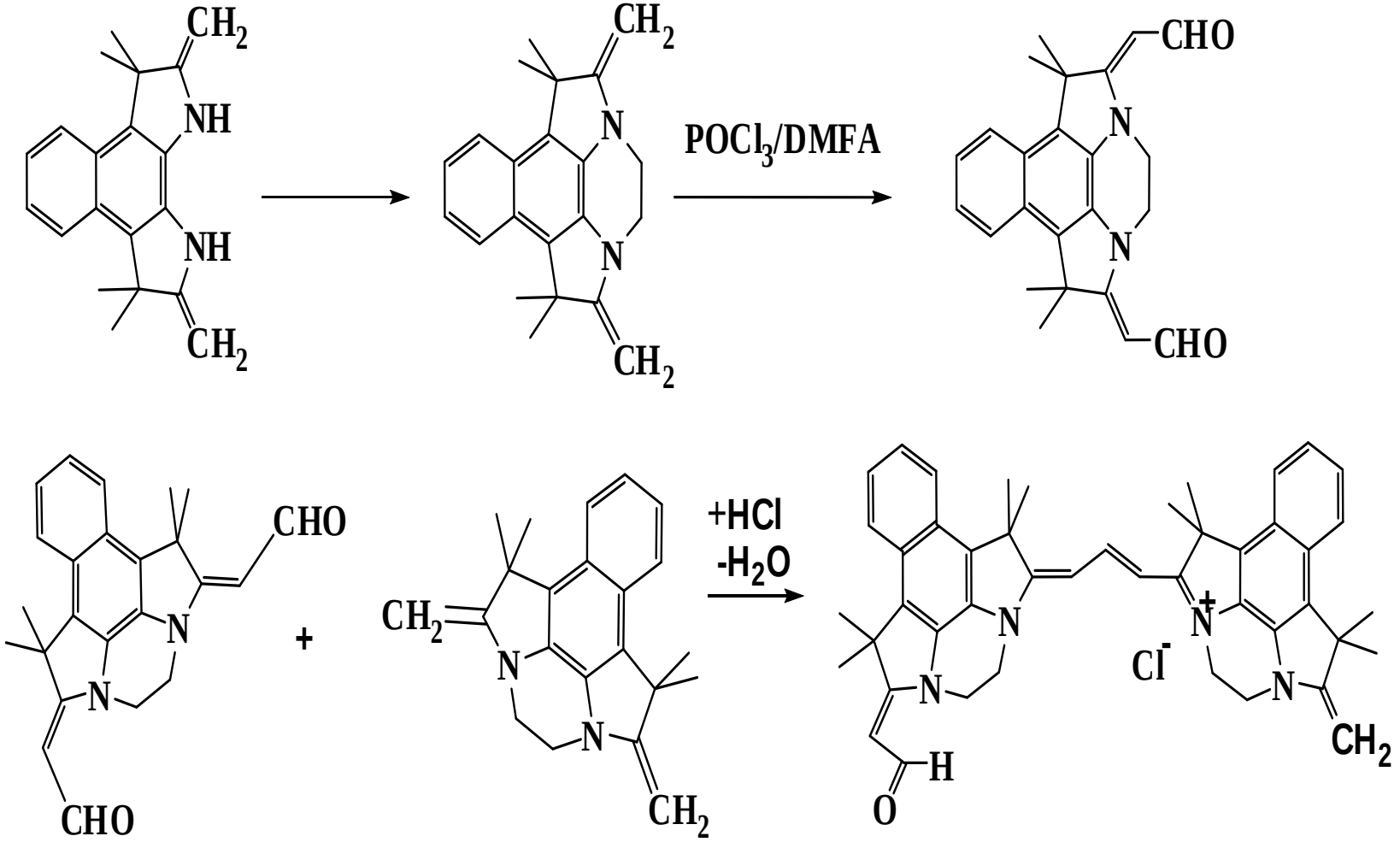
16

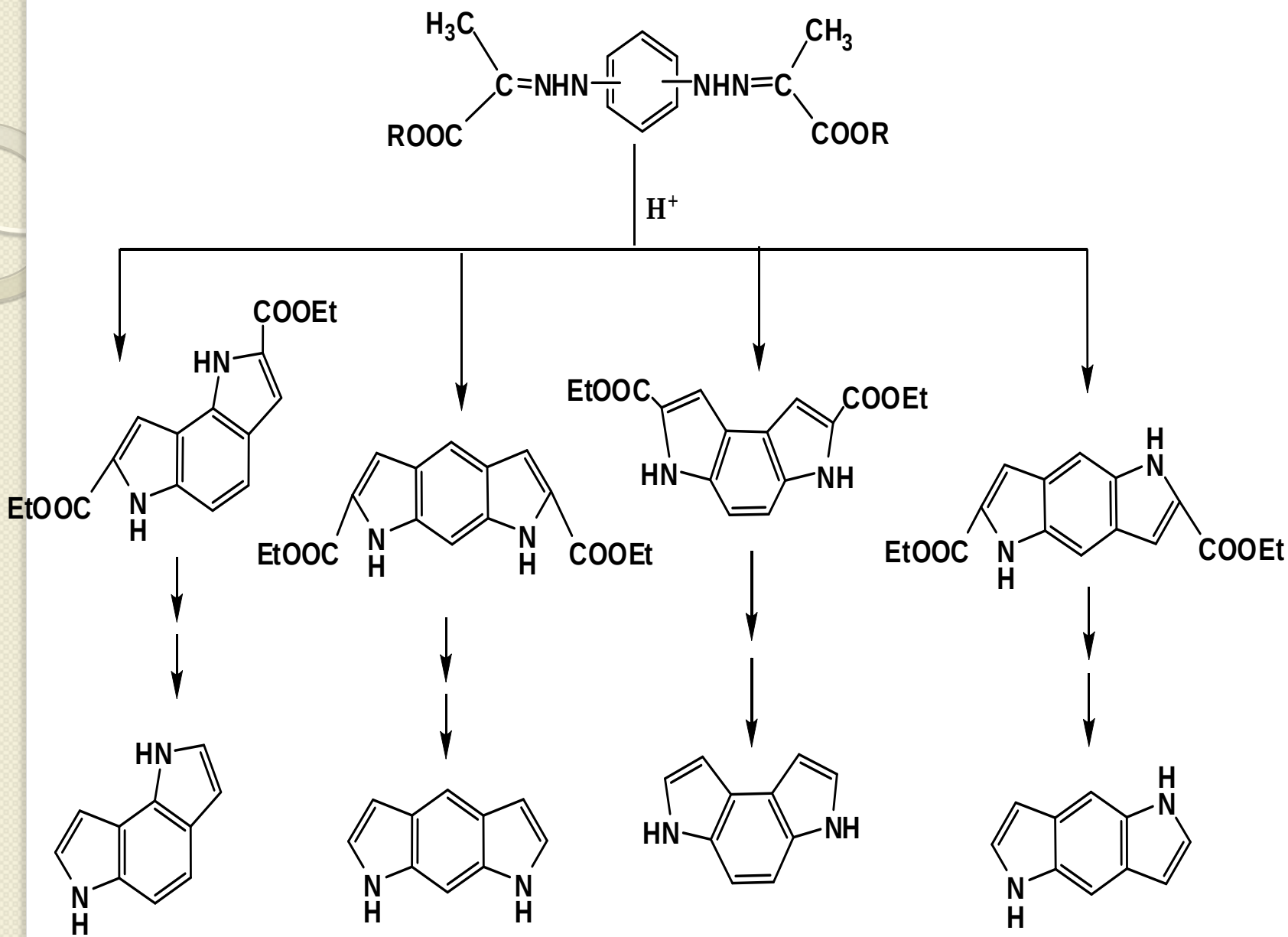

1) NaNO2/HCl
2) CH3COCH(CH2-C6H4-NO2)COOEt
3) OH-
H3COC
NH2
CH2-C6H4-NO2
NH-N=C-COOEt
NO2
COOEt
CH3
NH-NH2
17b

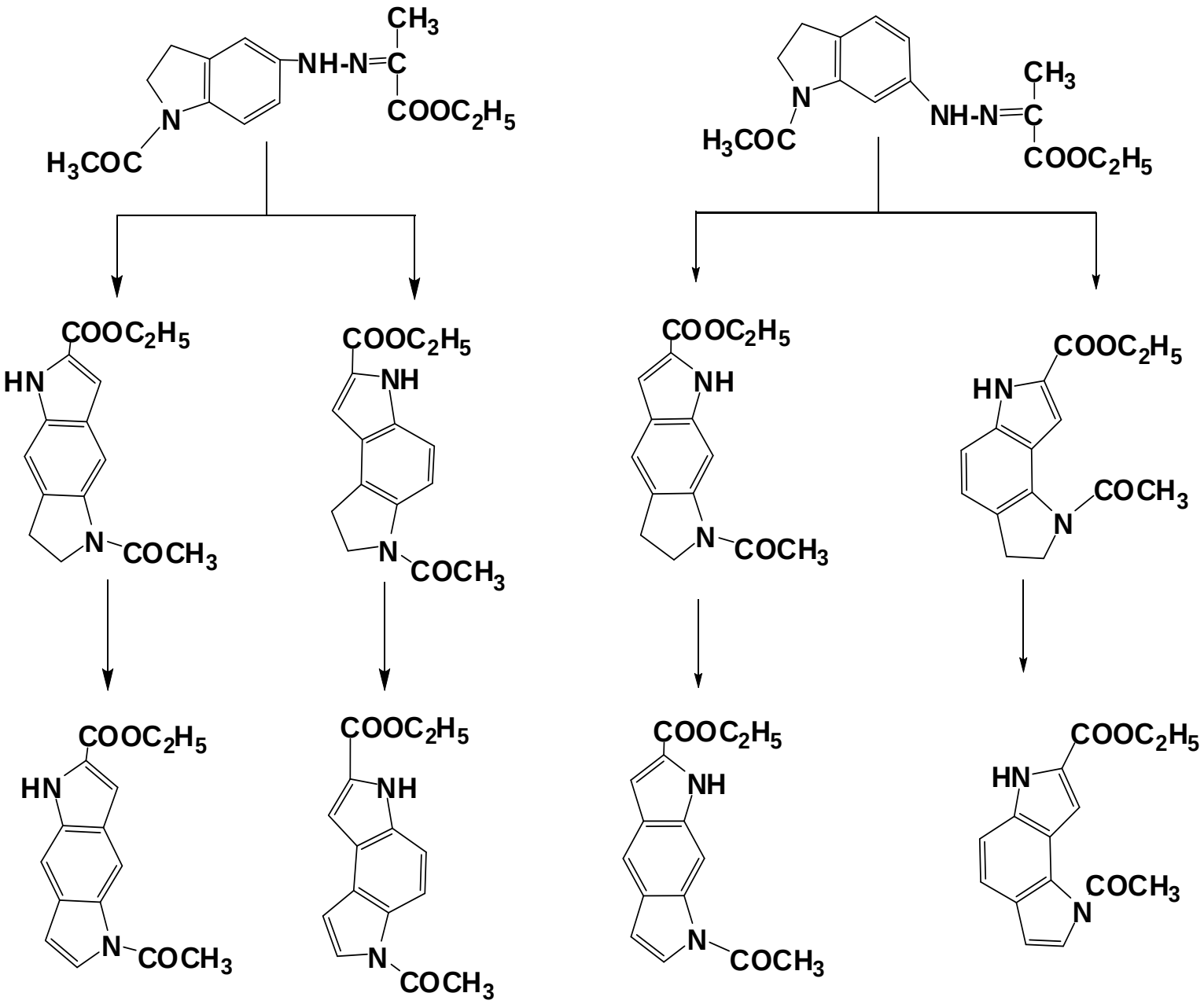

H3C
C
NHN
ROOC
NHN
C
CH3
COOR
2,7-
2,6-
1,5-
(R=H)
ROOC
COOR
HN
NH
HN
NH
COOR
ROOC
HN
NH
HOOC
N
H
COOH
- CO2
HN
NH
HN
NH

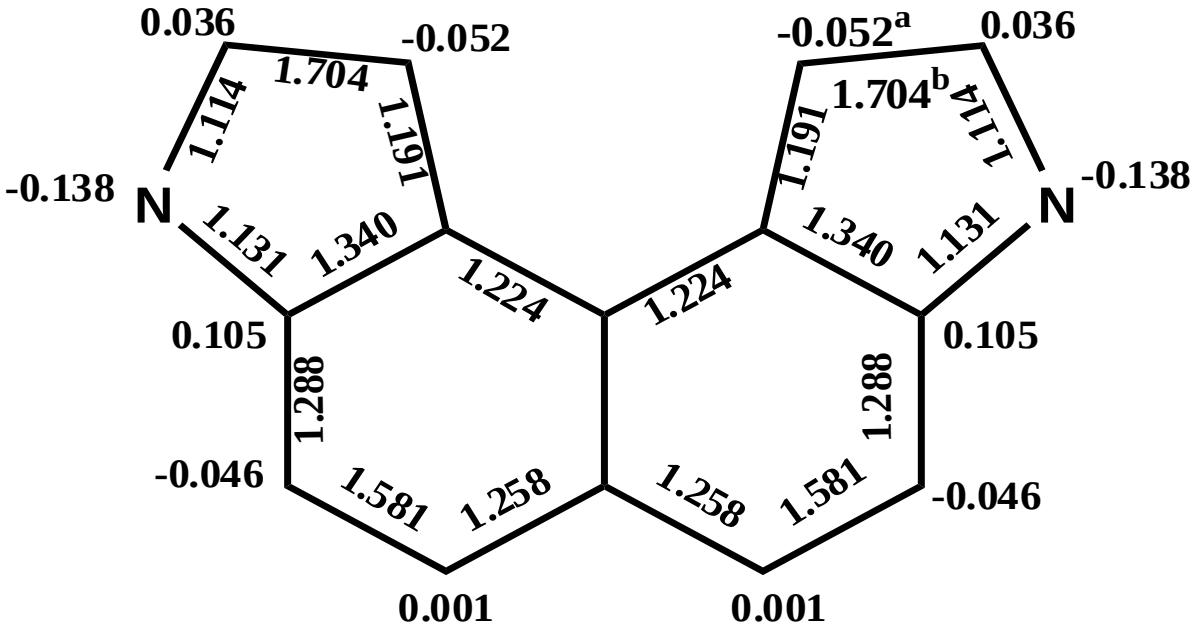

H2NHN
H2NHN
O
N
NH
N
NH
H
N
N
H
H
N
H
N
H
N
NH
OH
OH
H2N-NH2
NH2
NH
NH
NH2
CH3COCOOEt
CH3
C
N
COOEt
NH
N
C
COOEt
N
H
CH3
H+
R
NH
NH
R

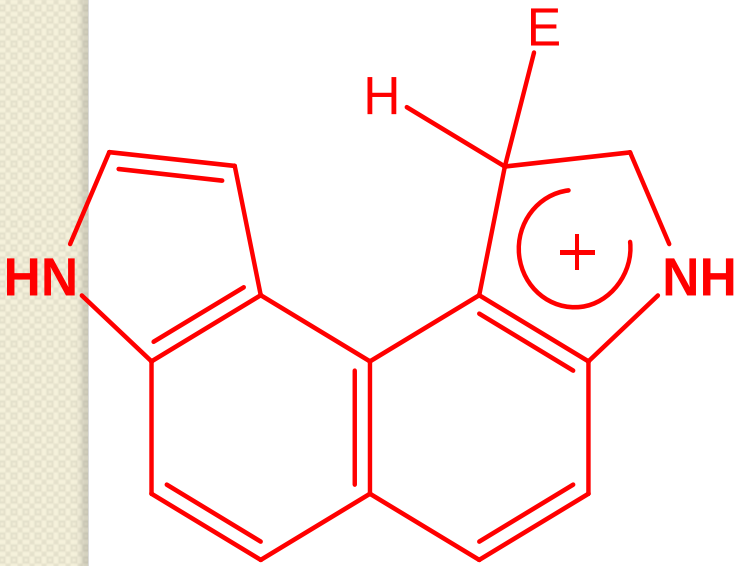

(CH3)2SO4
2CH3SO4-
OH-
OHC
HO
R
(CH3)2SO4
2CH3SO4-
OH-
OHC
HO
R
R= -NO2, -Br

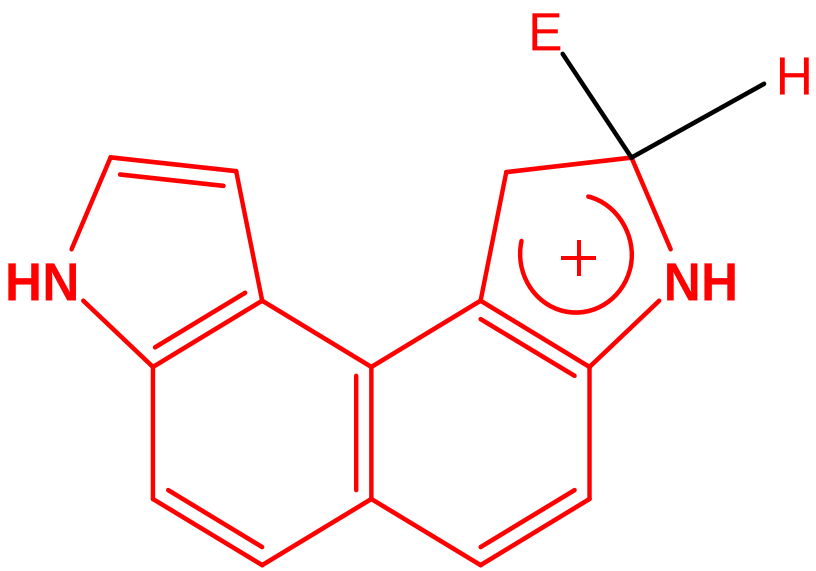

CH2
NH
NH
CH2
CH2
N
N
CH2
POCl3/DMFA
CHO
N
N
CHO
CHO
N
CHO
+
CH2
N
N
CH2
+HCl
-H2O
N
N
Cl-
N
N
CH2
H
O

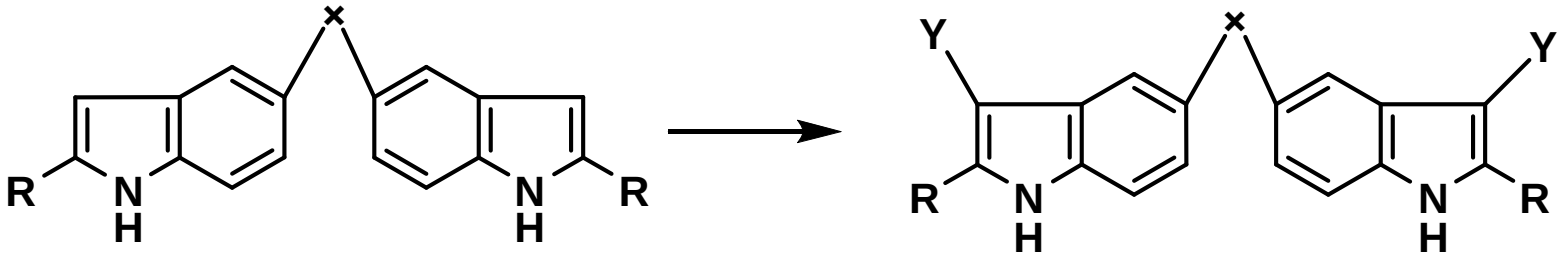

H3C
C=NHN
NHN=C
CH3
ROOC
COOR
H+
COOEt
HN
EtOOC
N
H
EtOOC
N
H
N
H
COOEt
EtOOC
COOEt
HN
NH
H
N
EtOOC
N
H
COOEt
HN
N
H
N
H
HN
NH
H
N
N
H


CH3
NH-N=C
COOC2H5
N
H3COC
COOC2H5
HN
N
COCH3
COOC2H5
NH
N
COCH3
COOC2H5
HN
N
COCH3
COOC2H5
NH
N
COCH3
COOC2H5
HN
N
COCH3
COOC2H5
NH
N
COCH3
COOC2H5
HN
N
COCH3


0.036
-0.052
-0.052a
0.036
1.704
1.704b
1.114
1.191
1.191
1.114
-0.138
N
1.131
1.340
1.224
1.224
1.340
1.131
N
-0.138
0.105
0.105
1.288
1.288
-0.046
1.581
1.258
1.258
1.581
-0.046
0.001
0.001

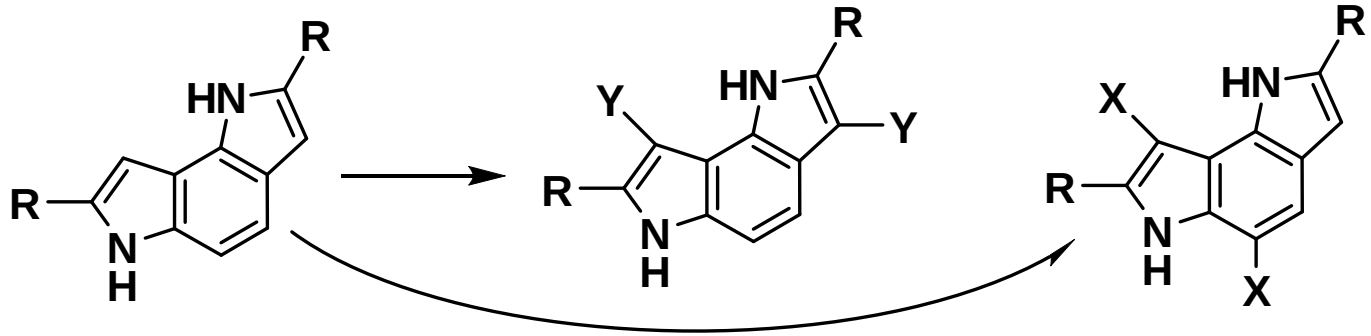

E
H
HN
+
NH

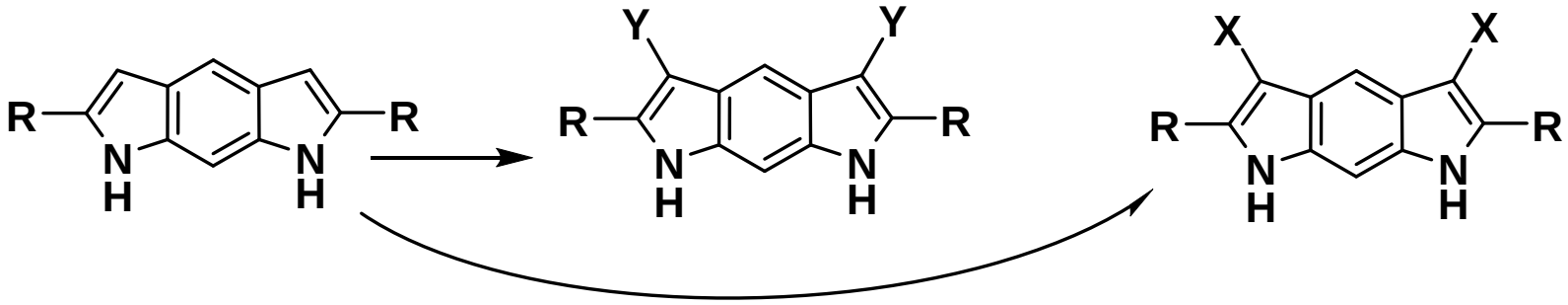

E
H
HN
+
NH



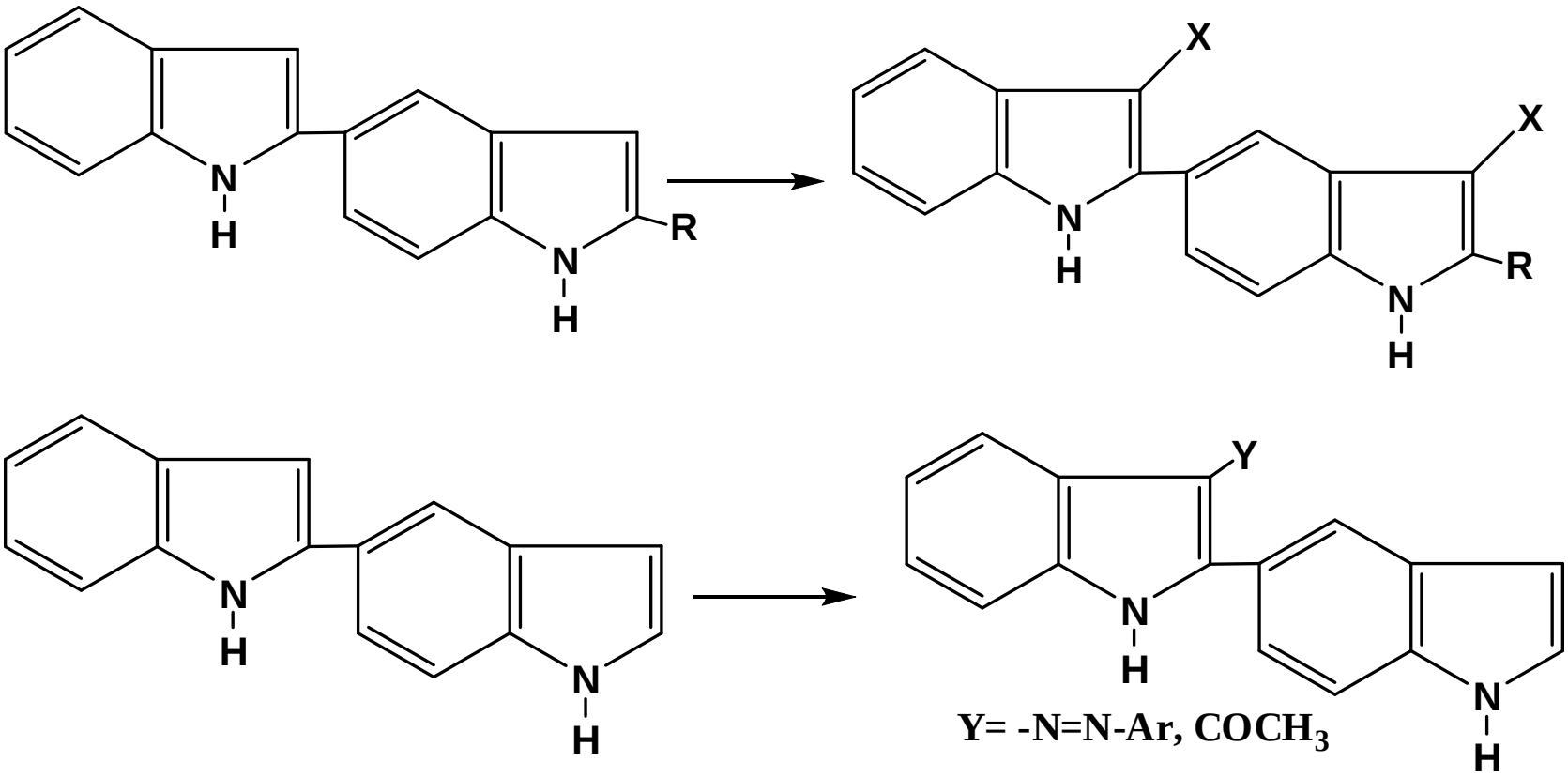
X= -; O;CH_2;C_2H_4; CH=CH;C_6H_4;S;SO_2;

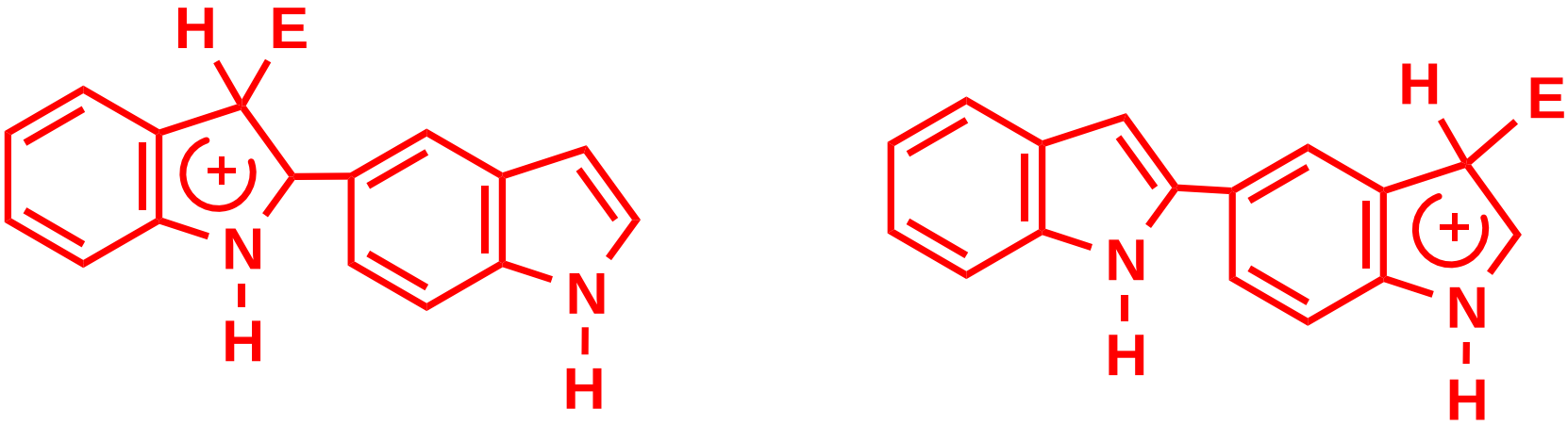
R=H; $COOC_2H_5$; Y= CHO; $COCH_3$; $CH_2N(CH)_2$; N=N-Ar …

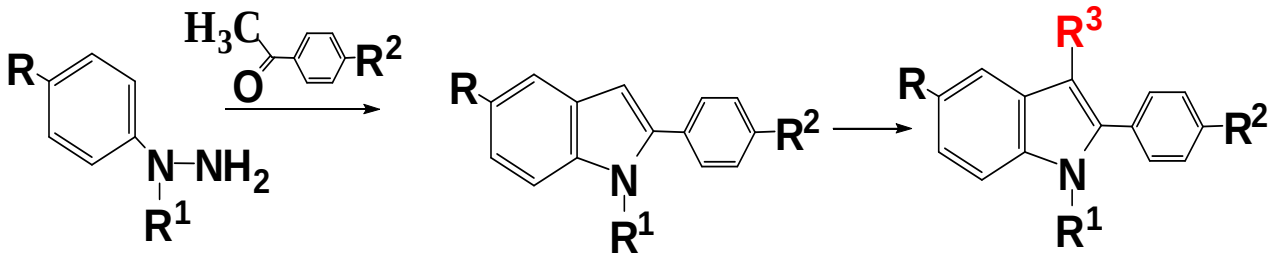




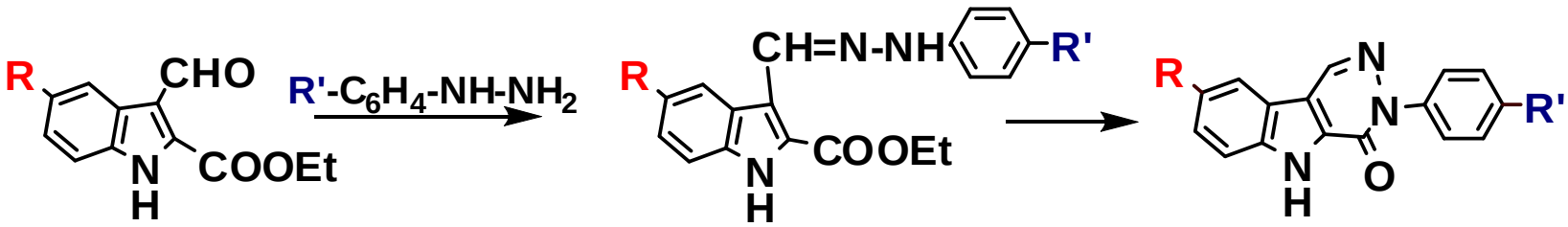
R=H; $COOC_2H_5$; Y= CHO; $COCH_3$; $CH_2N(CH)_2$; N=N-Ar; X= NO_2; $COCH_3$;Br


N
H
N
H
R
X
X
N
H
N
H
R
N
H
N
H
Y
N
H
N
H
Y= -N=N-Ar, COCH3

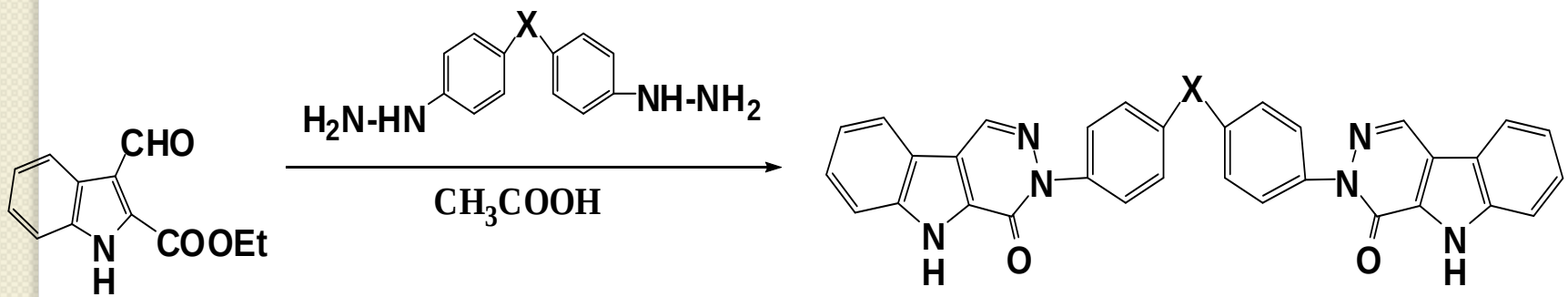

H
E
+
N
H
N
H
H
E
+
N
H
N
H

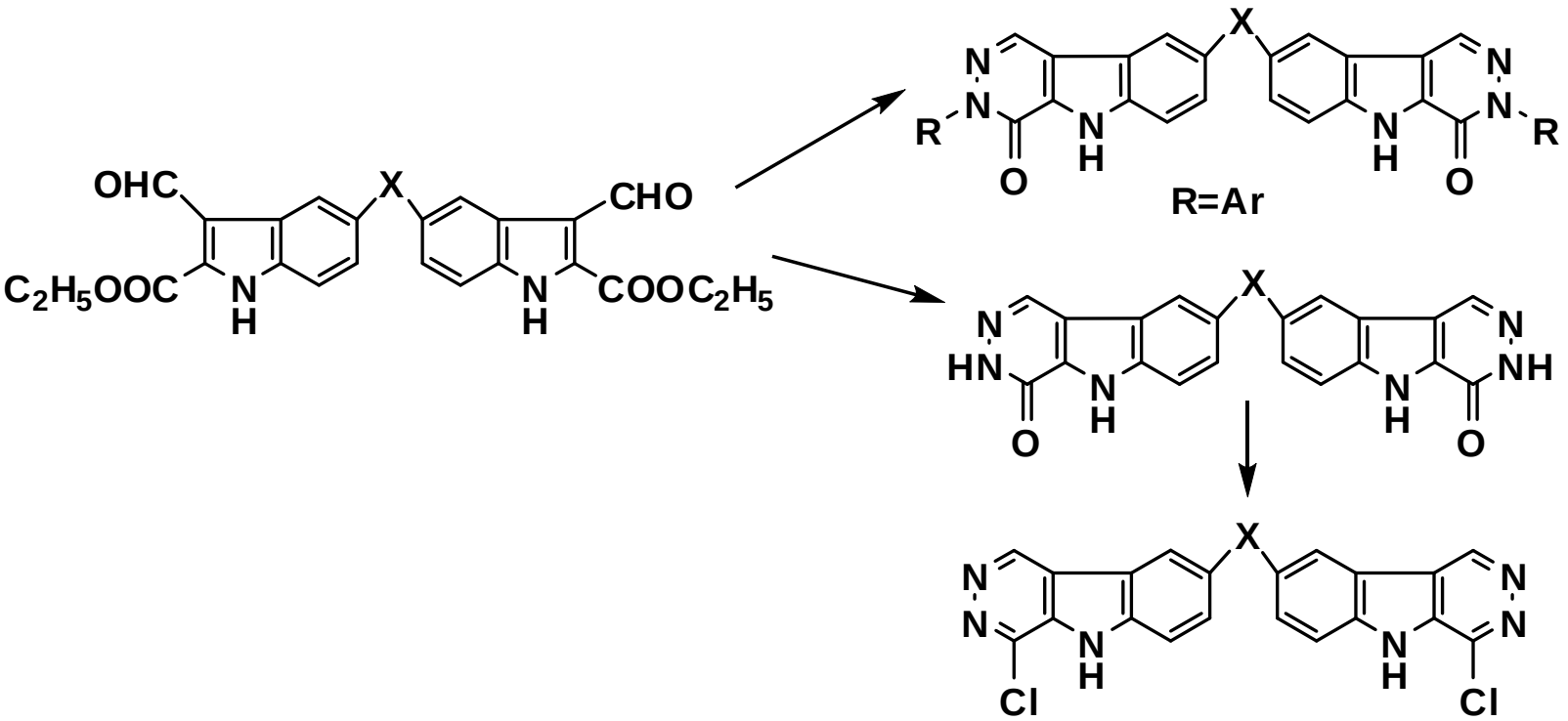


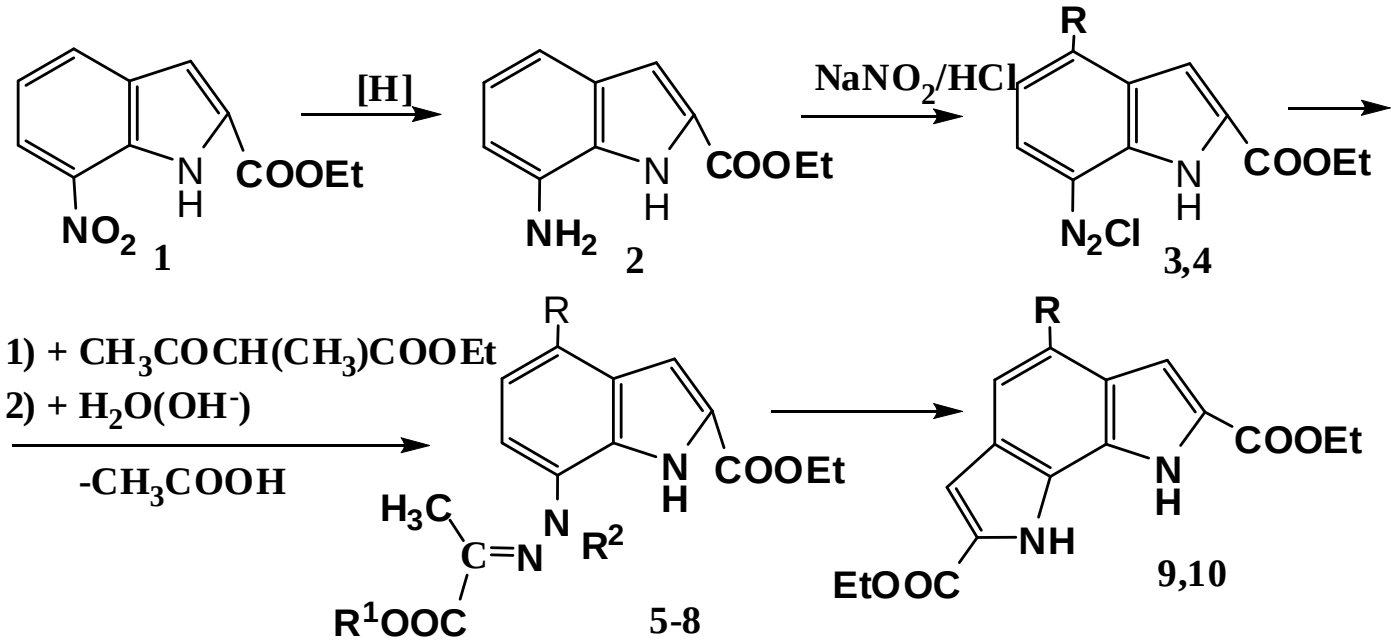
R=H,OCH_3, Cl,Br,Ph,$SO_2C_6H_4Cl(p)$, $SC_6H_4NO_2(p)$, $SC_6H_4NH_2(p)$;
R_1 = H,Me,Ph,CH_2Ph;
R_2=H,OCH_3, Cl,Br,Ph,CH_2Ph, C_2H_4Ph, $NO_2(p,m)$, $NH_2(p,m)$, $NHCOCH_3$.....;
R_3=$CH_2N(CH_3)_2$, CHO, NO,N=N-Ar, CH=X .....



R=H;Cl;Br;NO_2;CH_3;Ph; R'=H;Cl;Br;NO_2;Ph; Ar




OHC
X
CHO
C2H5OOC
N
H
N
H
COOC2H5
R=Ar
HN
NH
Cl
EtOOC
CHO
HN
OHC
NH
EtOOC
NH2-NH2
O
HO
OH

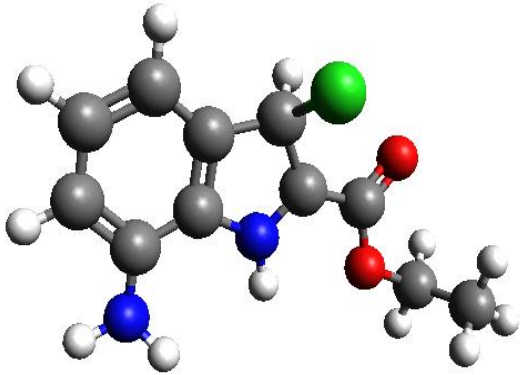


3,5,9 R=H; 4,6-8,10 R=Cl; 8 R^1=H; 5-7 R^1=Et; 5,6,8 R^2 =H; 7 R^2 =Et

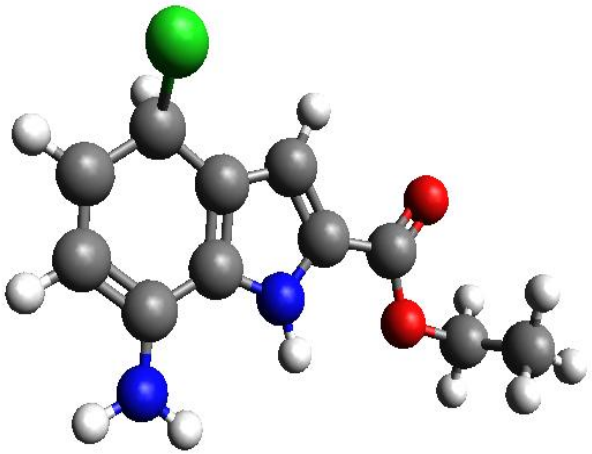
3 R=H; 4 R=Cl; 5 R=H, R^1=Et, R^2 =H; 6 R=Cl, R^1=Et, R^2 =H;

7 R=Cl, R^1=Et, R^2 =Et; 8 R=Cl ,R^1= R^2 =H; 9 R=H; 10 R=Cl;

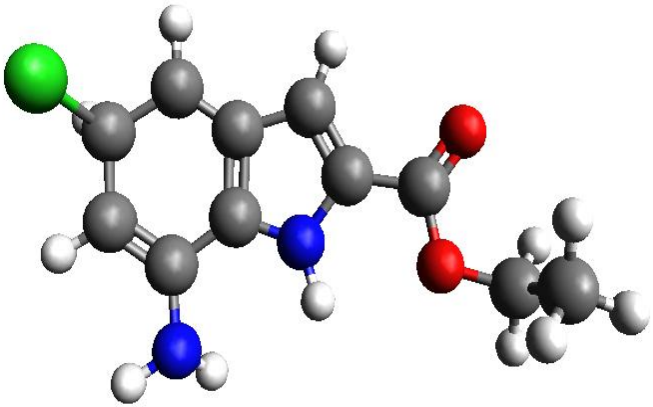
- **Чикваидзе И.Ш., Самсония Ш.А., Таргамадзе Н.Л., Ломадзе Н.Ш. Неожиданное хлорирование в процессе диазотирования 2-этоксикарбонил-7-аминоиндола. Химия Гетероциклических Соединений, 1994, №8, с. 1145-1146.**
- **Чикваидзе И.Ш., Самсония Ш.А., Ломадзе Н.Ш., Таргамадзе Н.Л., Салия З.Е. Пирролоиндолы 18. Необычная реакция хлорирования в процессе синтеза 2,7-диэтоксикарбонил-1Н,8Н-Пирроло[3,2-g]индола. Химия Гетероциклических Соединений, 2000, №12, с.1656-1660.**



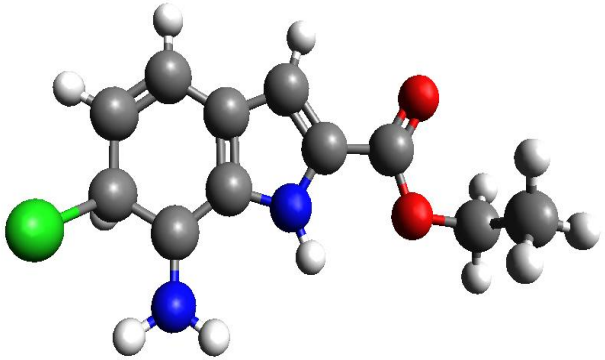
211.1



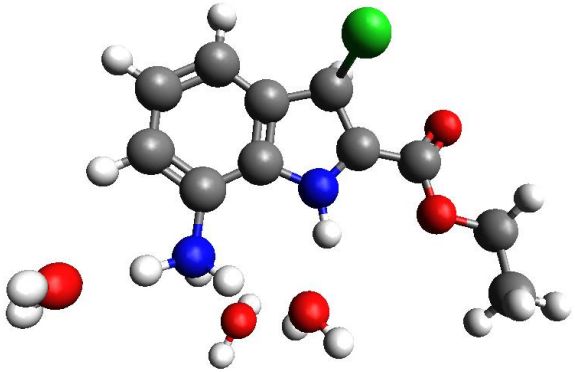
220.7,



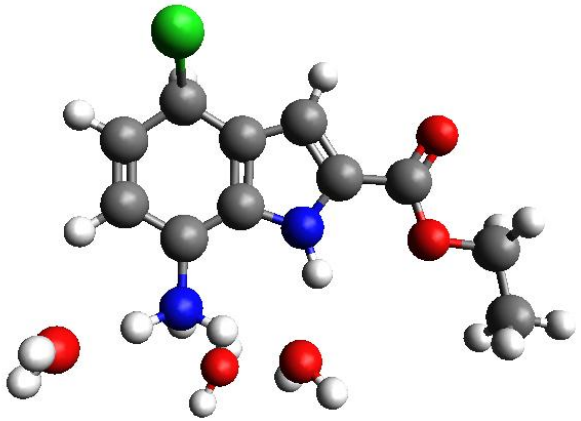
201.8



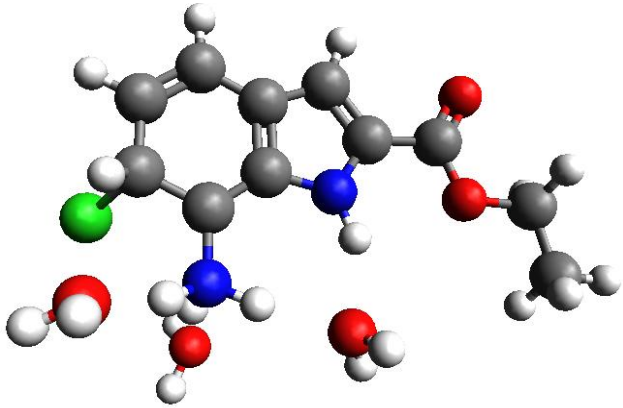
218.4



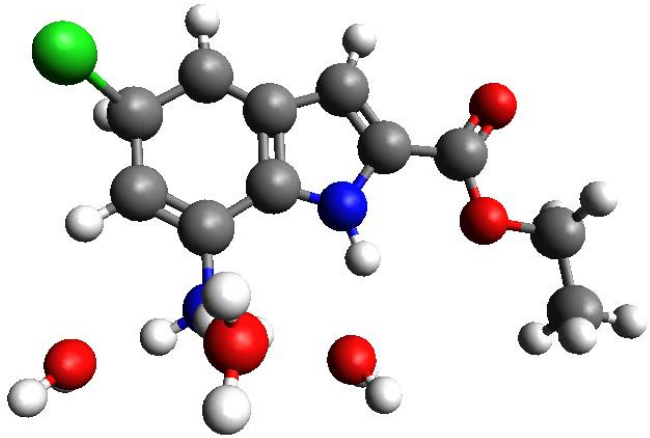
131.3,



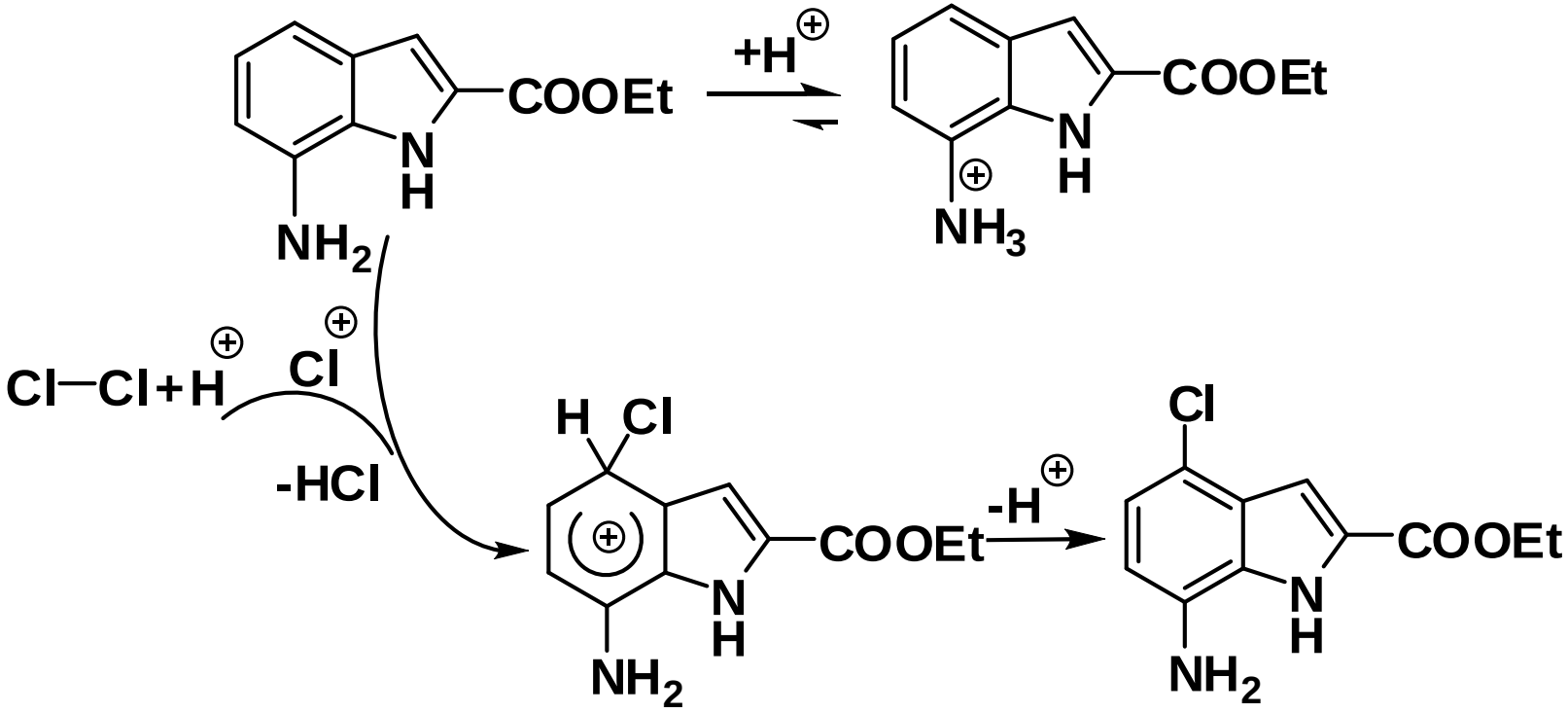
145.2,



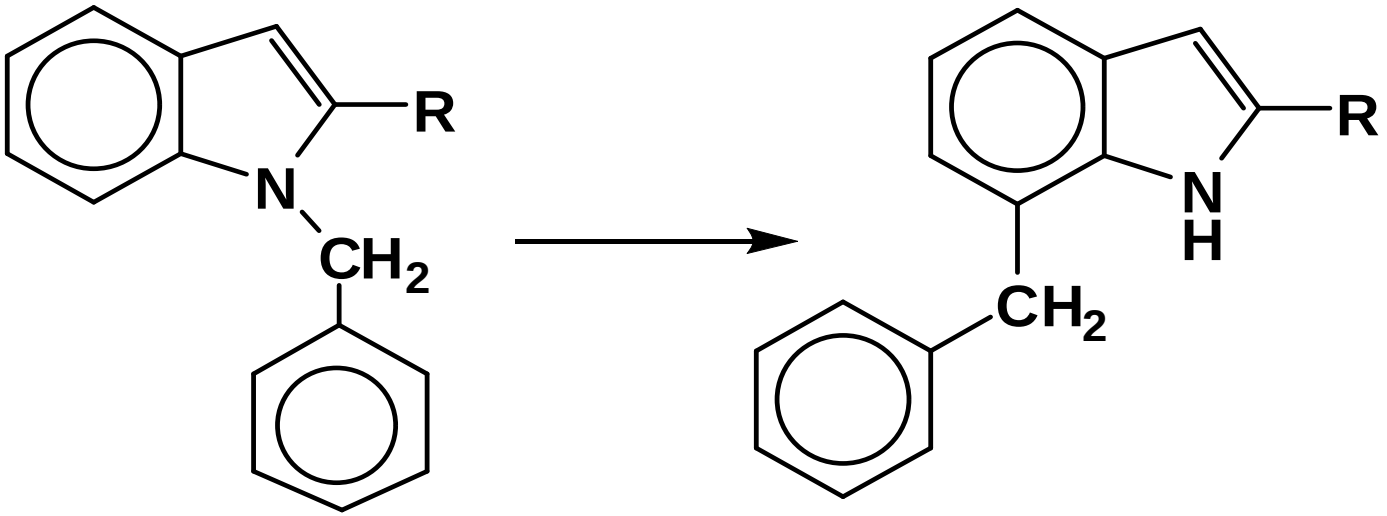
129.5,



132.9



$$2\,NaNO_2 + 8HCl \longrightarrow 3Cl_2 + N_2 + 2NaCl + 4H_2O$$

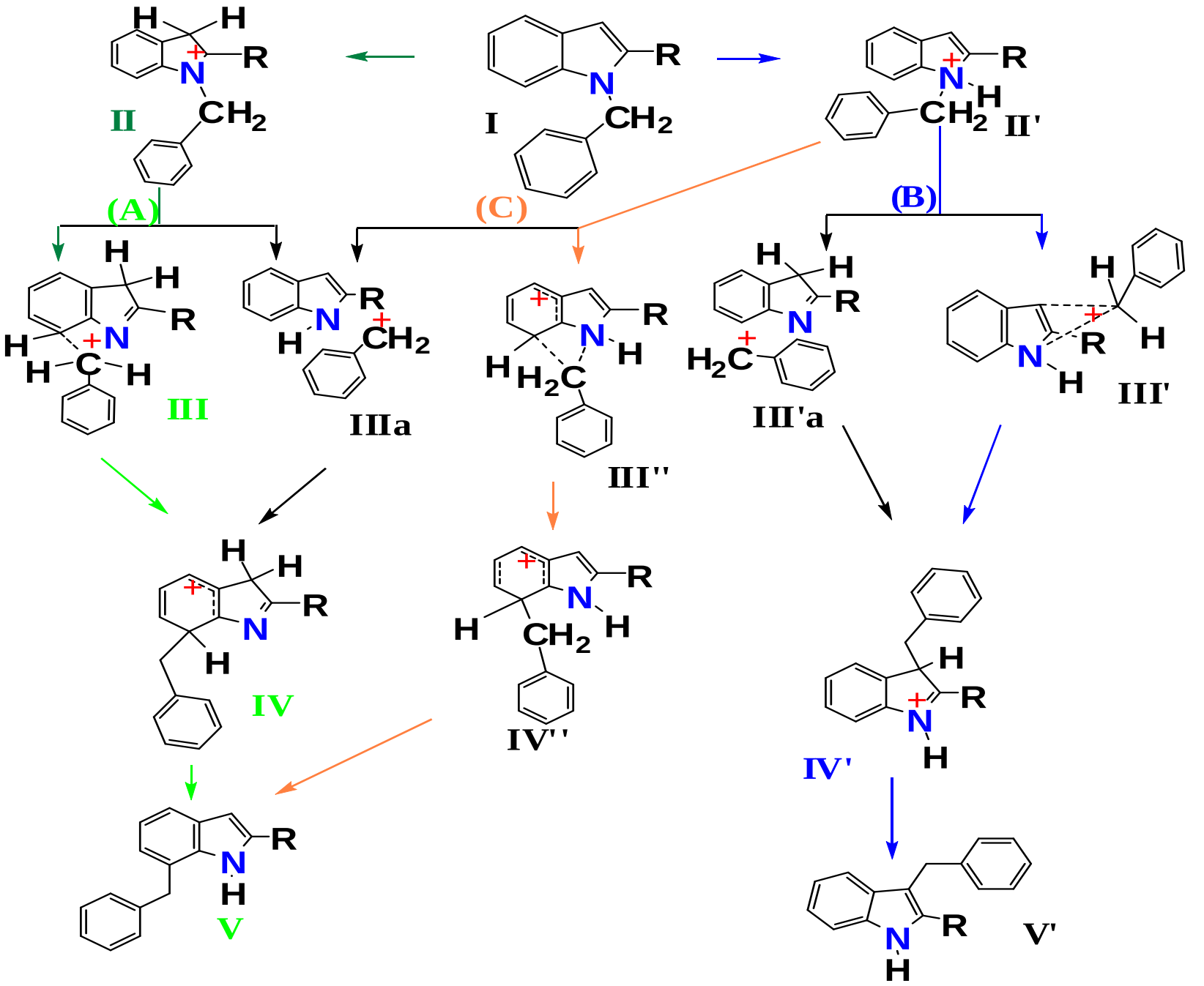


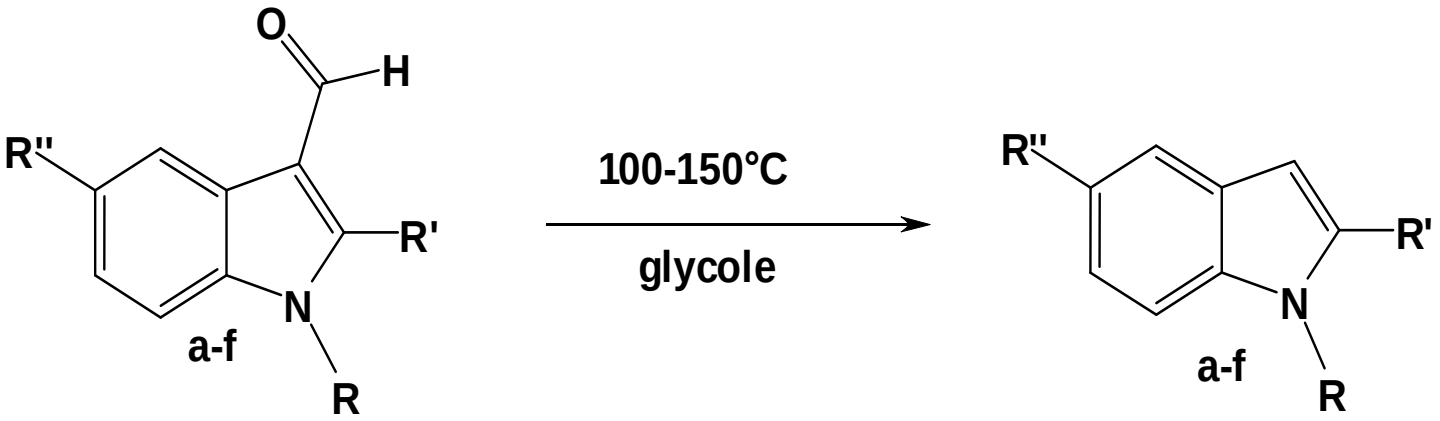
R= Me, CO_2Et, Ph-X (p); X= H, NO_2, Br, OMe, Ph, CH_2Ph

✓Самсония Ш.А., Чикваидзе И.Ш., Гогричиани Э.О. Неожиданная миграция бензильной группы в N-бензилиндолах. Химия Гетероциклических Соединений, 1994, №8, с. 1146-1147.

✓Самсония Ш.А., **Чикваидзе И.Ш.,** Гогричиани Е.О., Мачаидзе Н.Н., Салия З.Е. 1,7-Миграция бензильной группы в 2-замещённых N-бензилиндолах. Химия Гетероциклических Соединений, 1997, №5, с. 611-615 (www. osi. lv/hgs/hgs.html).

✓Чикваидзе И.Ш., Самсония Ш.А., Нариндошвили Т.Г. Производные индола 142. Некоторые свойства 4-(индол-2-ил)дифенилметана и 4-(индол-2-ил)-1,2-дифенилметана). Химия Гетероциклических Соединений, 2004, №4, с.524-529. (www. osi. lv/hgs/hgs.html).

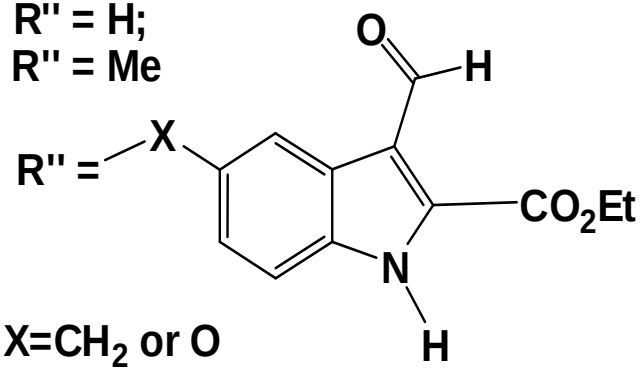

I
II
II'
(A)
(B)
(C)
III
IIIa
III''
III'a
III'
IV
IV''
IV'
V
V'



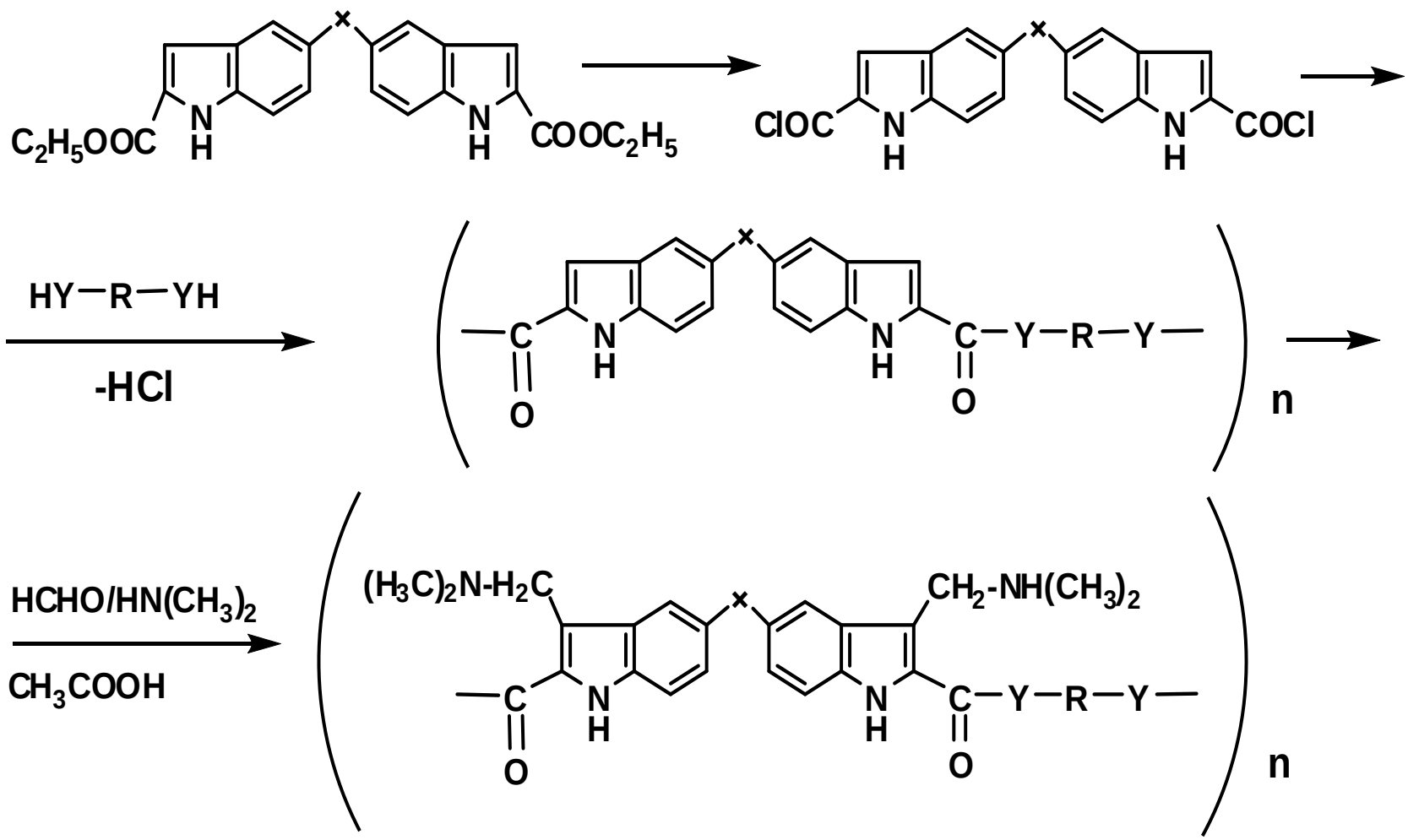
a R = Me, R' = Ph, R'' = H;
b R = H, R' = Ph, R'' = H;
c R = H, R' = $C_6H_4CH_2Ph$, R'' = H;
d R= H, R' = $C_6H_4CH_2CH_2Ph$, R'' = H;
e R =H, R' = CO_2Et, R'' = Me

f R = H, R' = CO_2Et,

R'' =



X=CH_2 or O



X= CH_2,O,SO_2; R=C_6H_4; C_6H_4-Z-C_6H_4; Y=O;NH;

36

ამ მიმართულებით დაცულია 30 საკანდიდატო (აკად. დოქტორი) და 4 სადოქტორო (მეცნიერებათა დოქტორი) დისერტაცია, გამოქვეყნებულია 550-მდე სამეცნიერო პუბლიკაცია, მათ შორის 284 სტატია,ოთხი მიმოხილვითი (130 იმპაქტფაქტორიან ჟურნალებში და 15 თავი მონოგრაფიებში), 250-მდე კონფერენციის და სიმპოზიუმების მასალებში (167 საერთაშორისო), მიღებულია 7 საავტორო მოწმობა და პატენტი. კათედრის ბაზაზე ჩატარებულია 4 საერთაშორისო კონფერენცია.

2014 წლის სექტქმბერში ჩატარდება ორი კონფერენცია:

,,ევრაზიის მე-8 კონფერენცია ჰეტეროციკლურ ნაერთთა ქიმიაში“ (EAMHC-8)

მე-3 საერთაშორისო კონფერენცია ორგანულ ქიმიაში (ICOC-2014) ,,ორგანული ქიმია - სიცოცხლის მამოძრავებელი ძალა“

გმადლობთ
ყურადღებისათვის!