

Αλδεΐδες.

Οι αρωματικές εμφανίζουν μεγάλο M^+ . Μεταξύ των διασπάσεων σημαντικές είναι η α -, η β - και McLafferty. Υπάρχει επίσης κατιόν HCO^+ .

SPECTRAL ANALYSIS BOX — Aldehydes

MOLECULAR ION

M^+ weak, but observable (aliphatic)

M^+ strong (aromatic)

FRAGMENT IONS

Aliphatic:

$m/e = 29$

$M - 29$

$M - 43$ $CH_2=CH-O^{\cdot}$

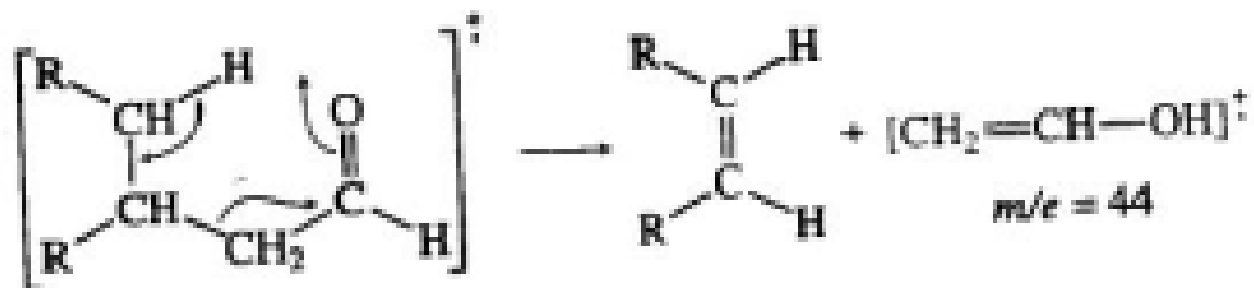
$m/e = 44$

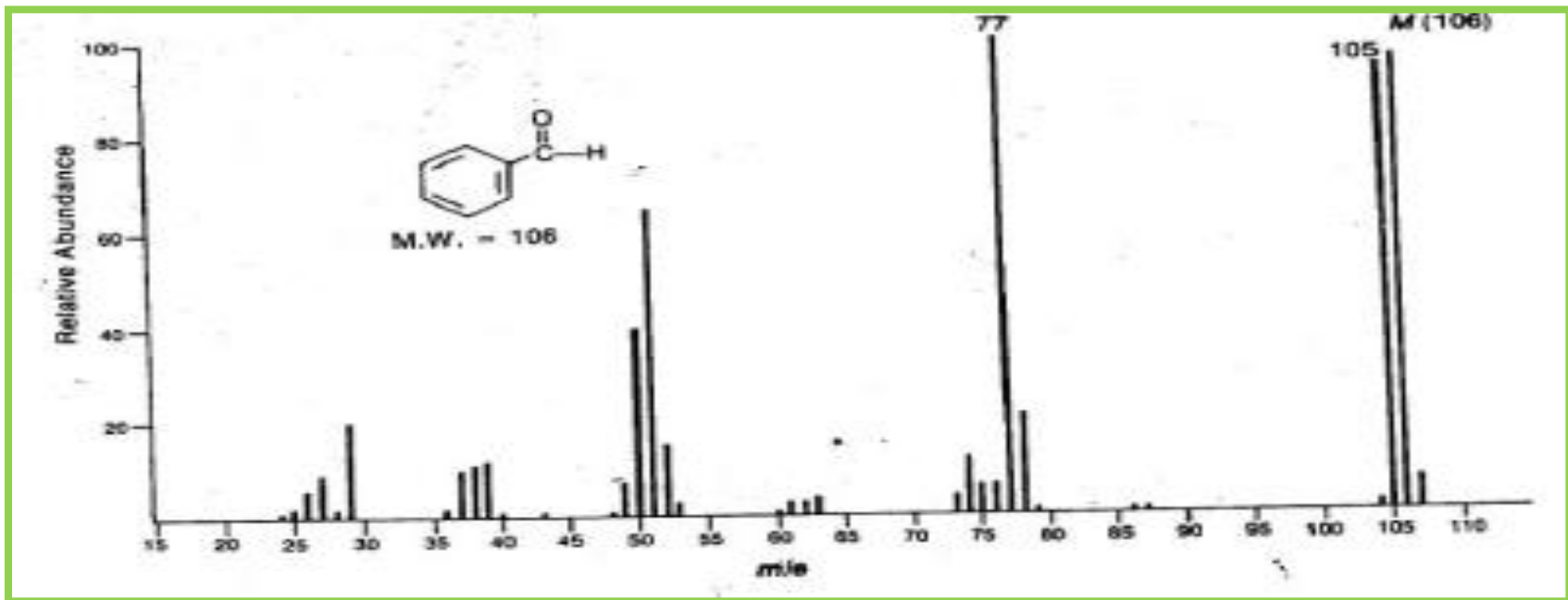
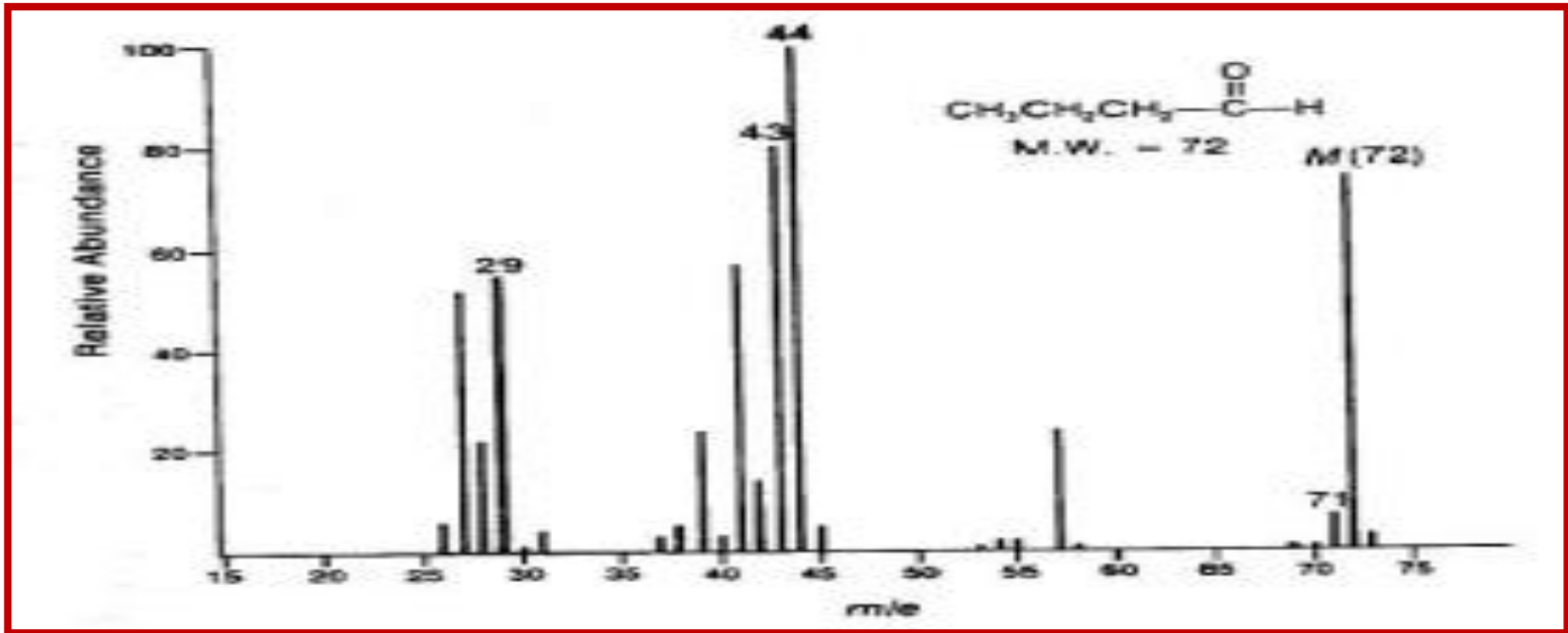
$[M - 44]$ $CH_2=CH-OH$

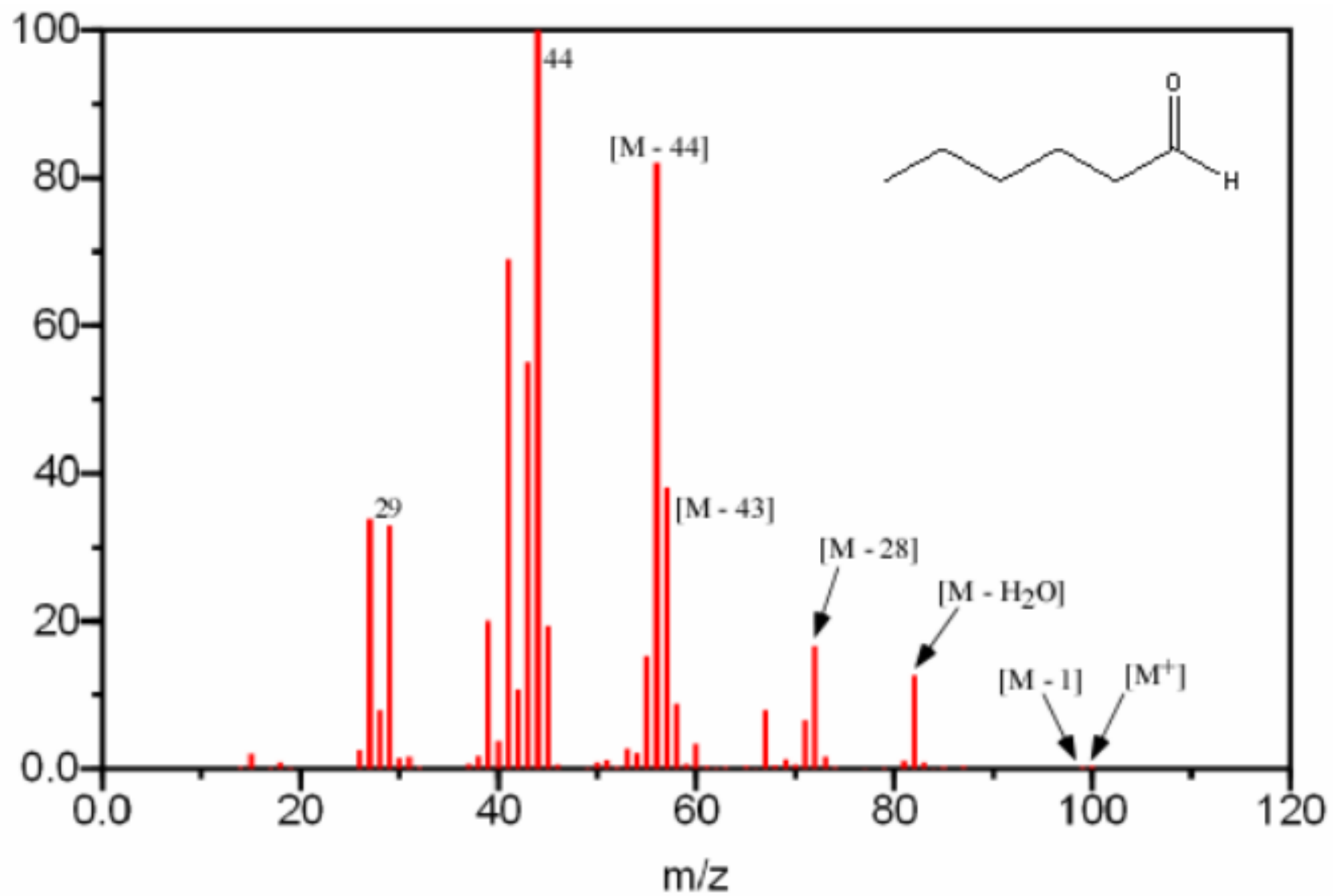
Aromatic:

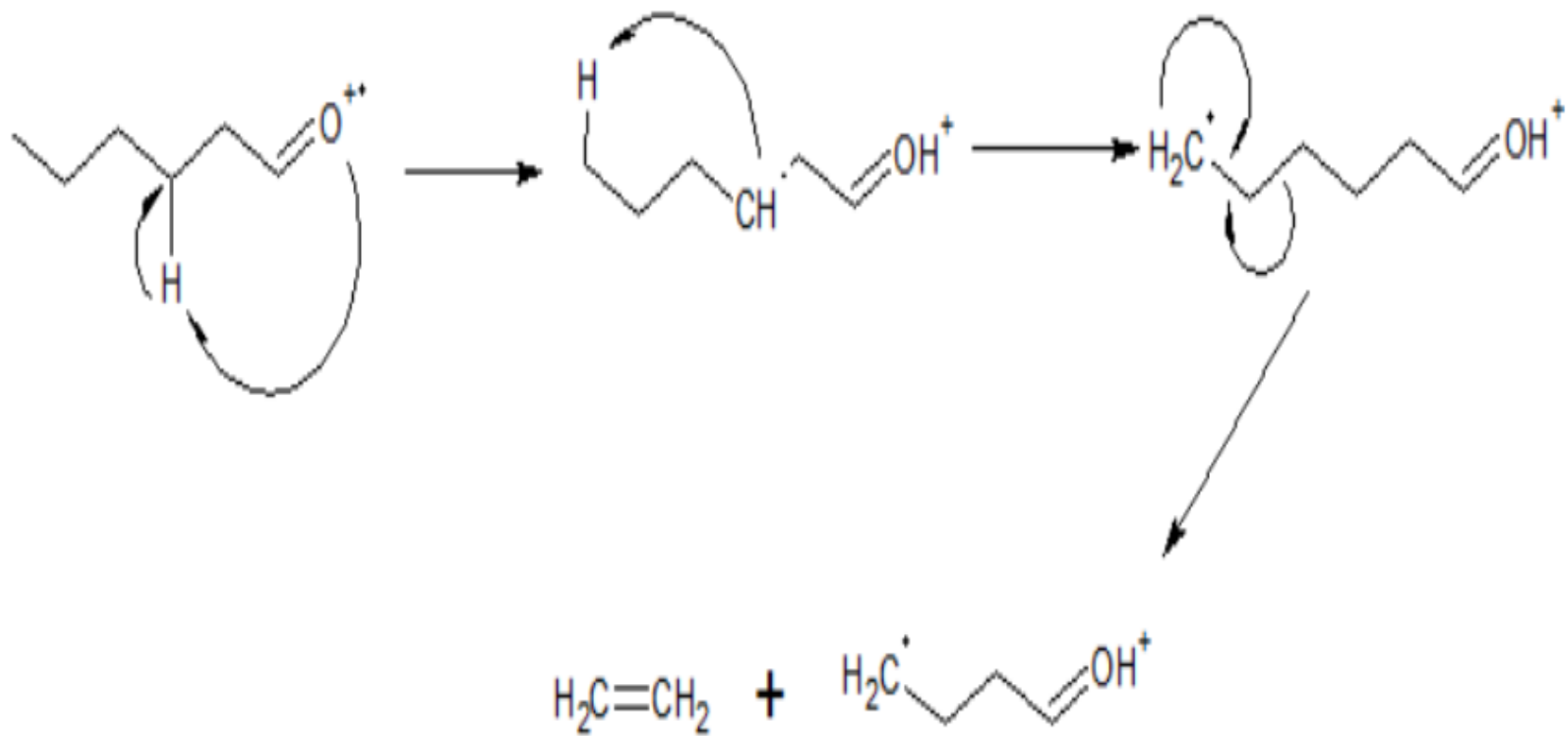
$M - 1$

$M - 29$

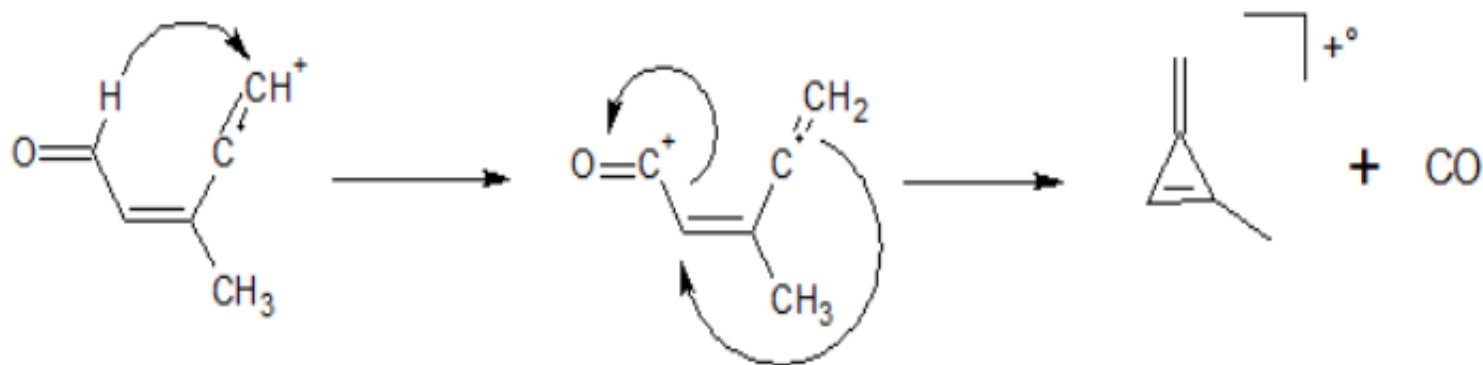
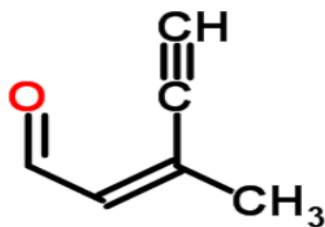
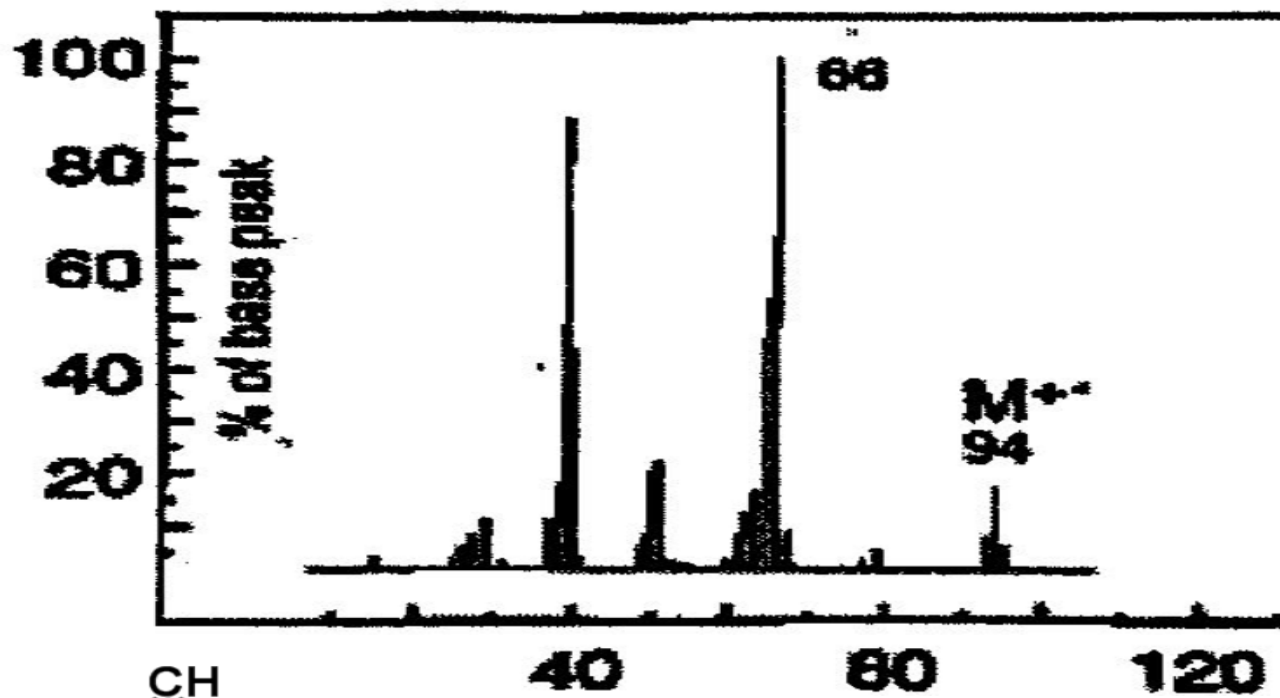


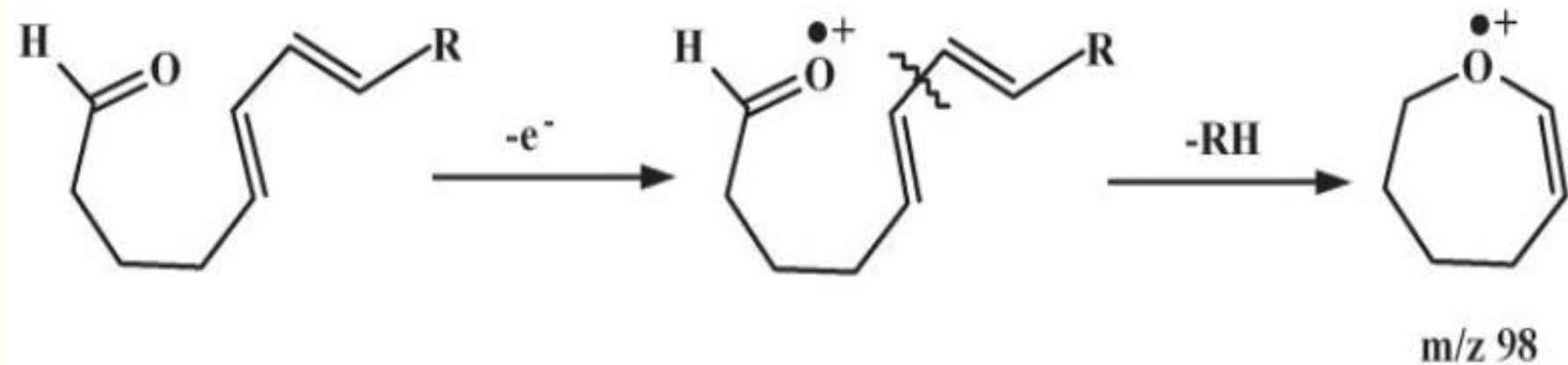
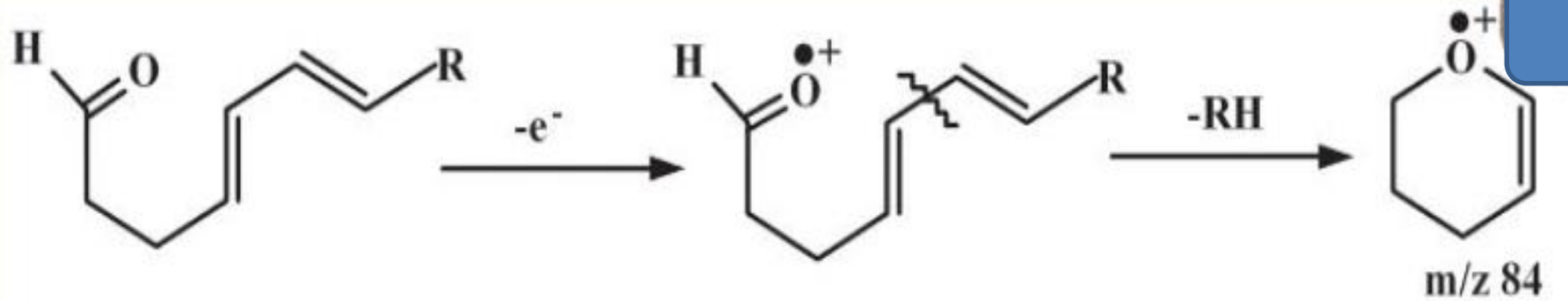


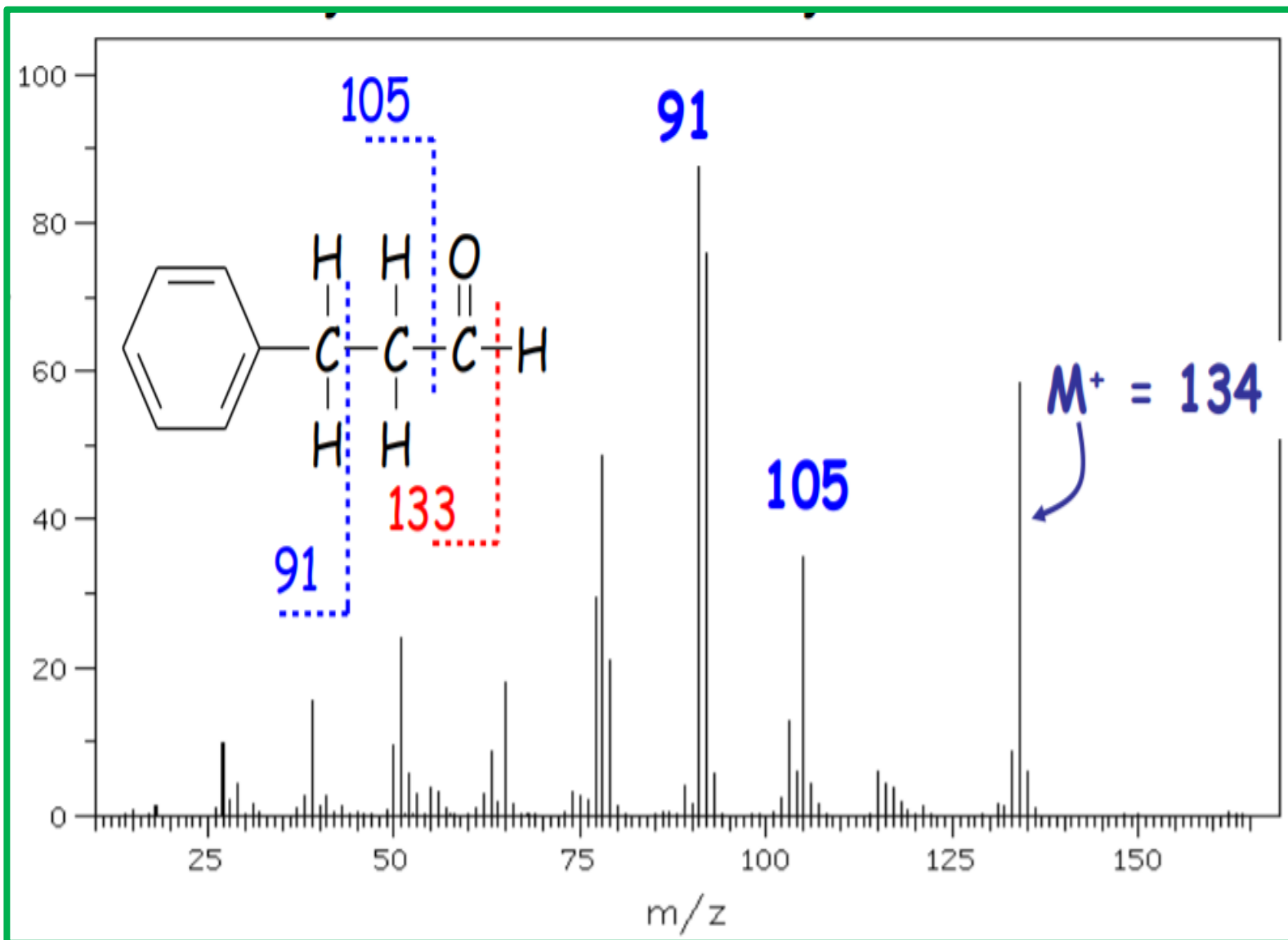


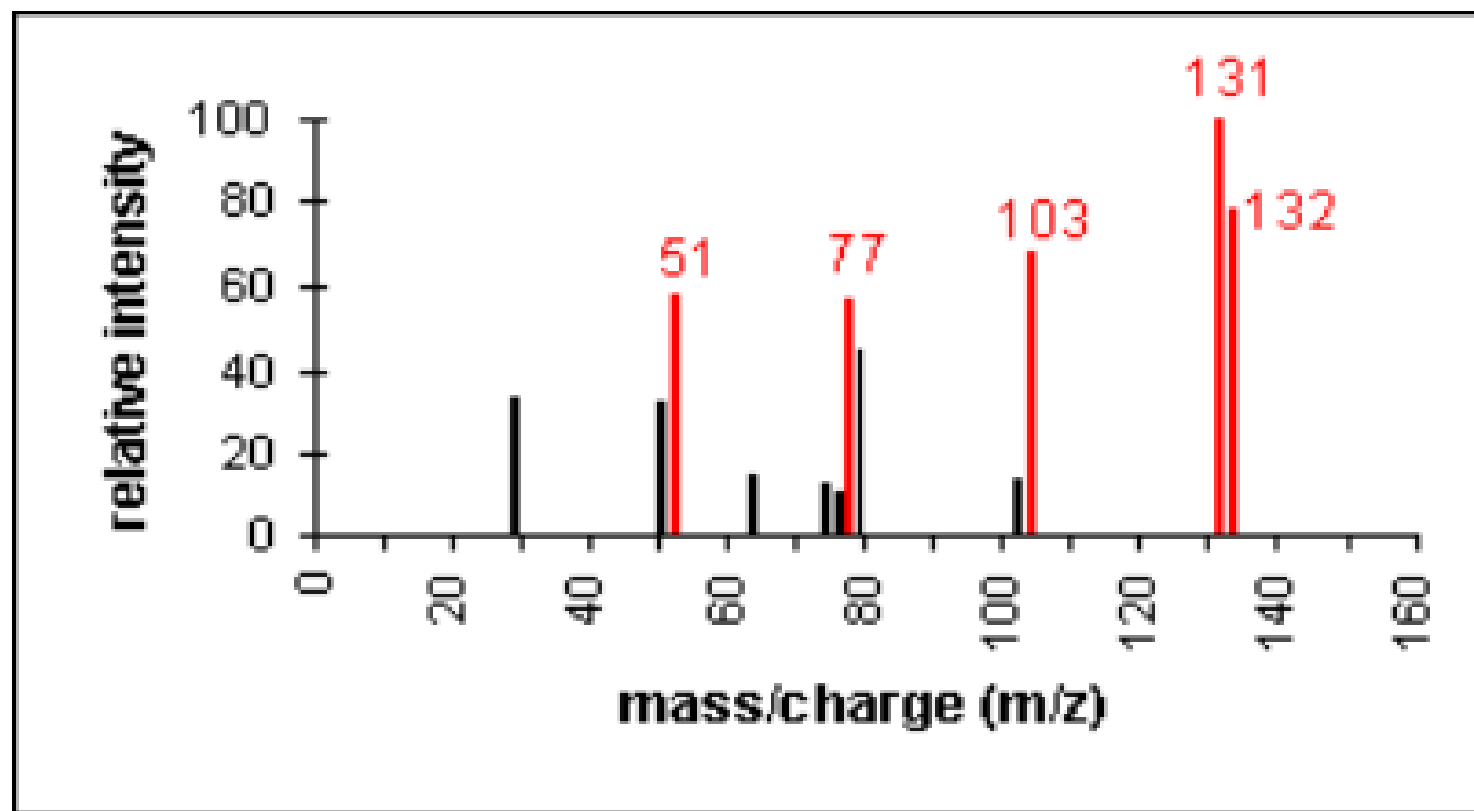
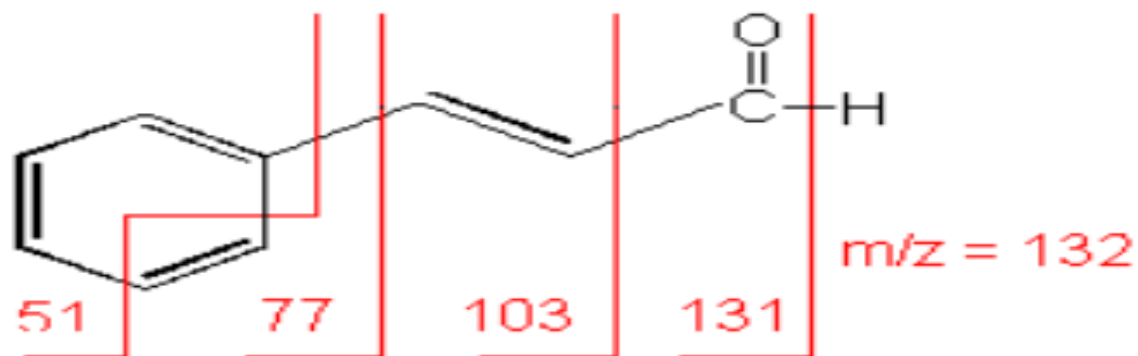


M - 28









Κετόνες,

Εμφανίζουν μεγάλο M^+ με ανάλογες διασπάσεις, όπως οι αλδεύδες. Συνήθως αποσπάται το μεγαλύτερο R'. Οι κυκλικές κετόνες ακολουθούν ποικιλία τρόπων διάσπασης με αποσπάσεις R' και CO. Οι αρωματικές κετόνες χάνουν R' και CO.

SPECTRAL ANALYSIS BOX — Ketones

MOLECULAR ION

M^+ strong.

FRAGMENT IONS

Aliphatic:

$M - 15, M - 29, M - 43, \text{etc.}$

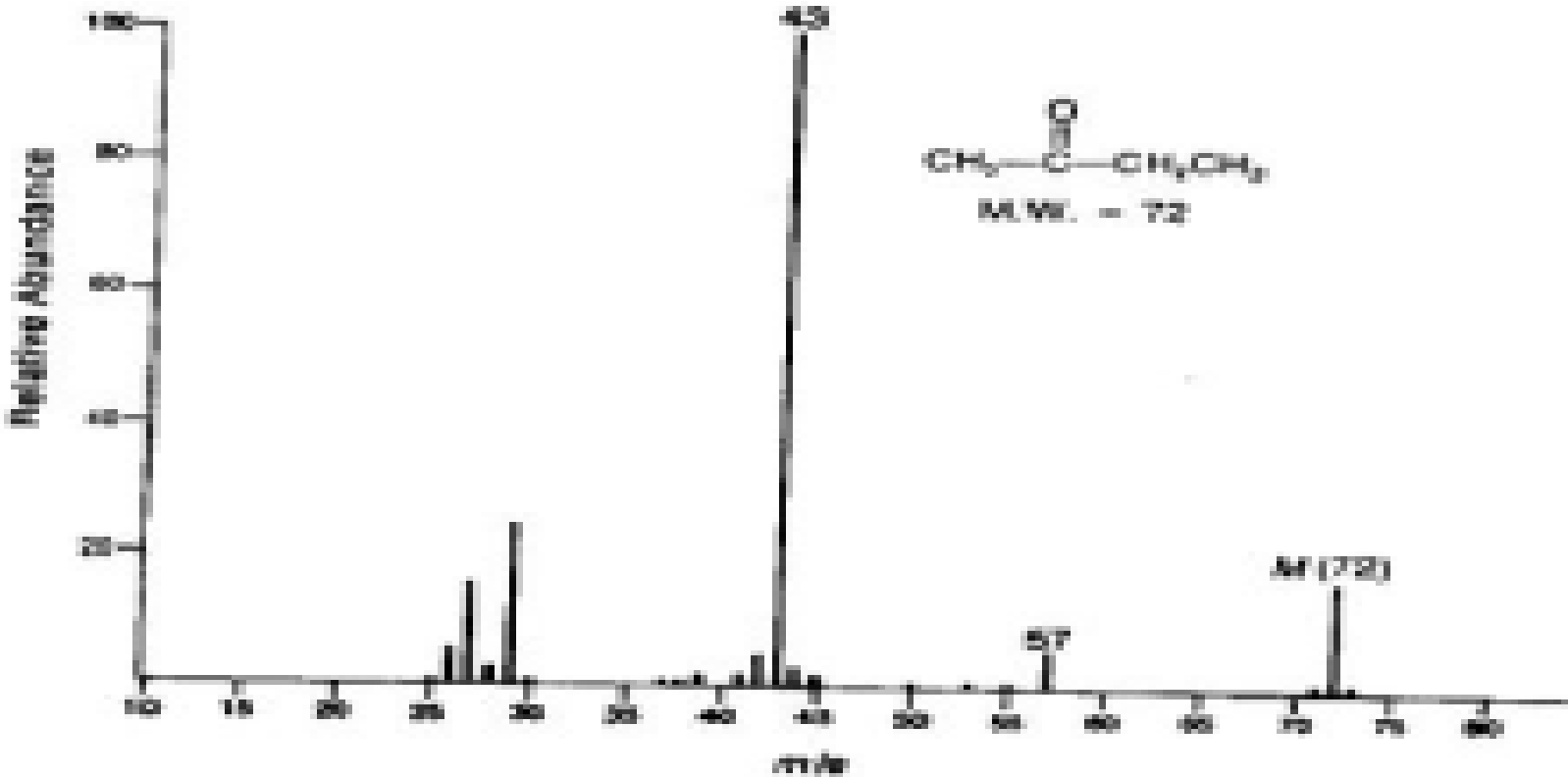
$m/e = 43$

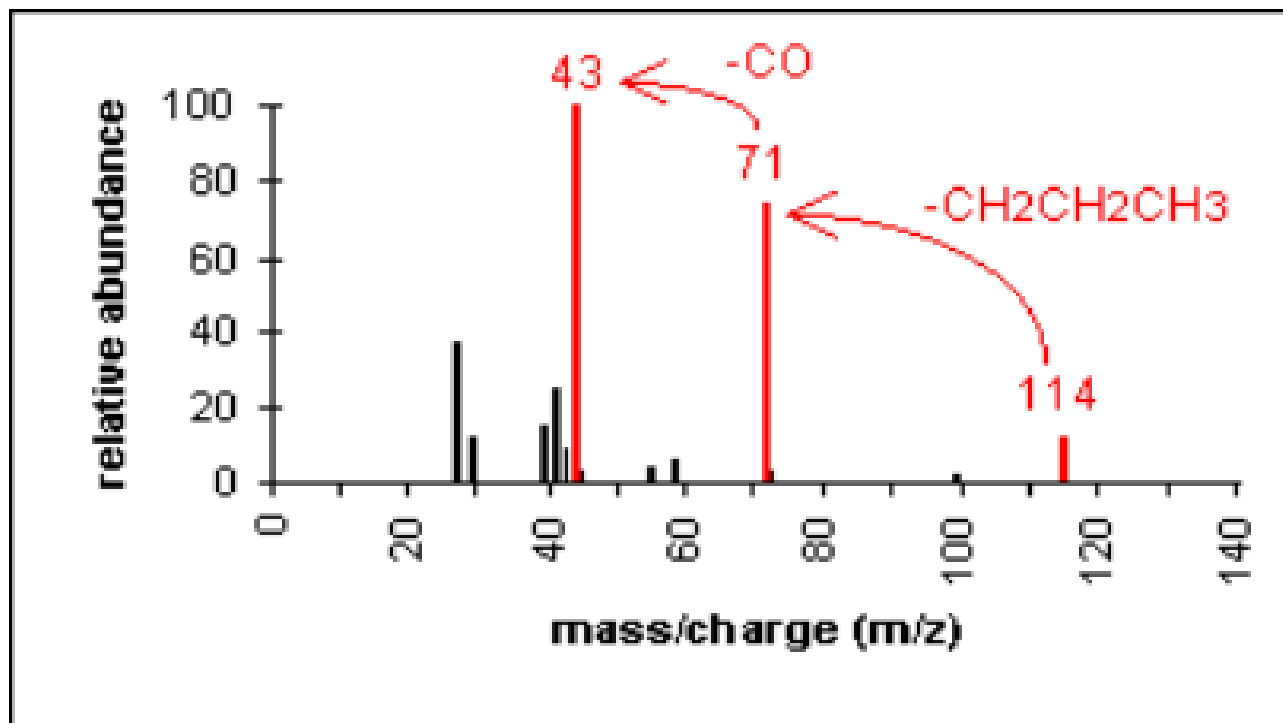
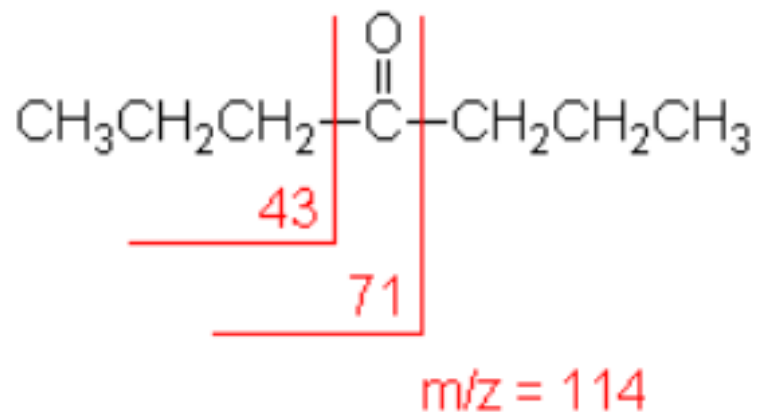
$m/e = 58, 72, 86, \text{etc.}$

$m/e = 42, 83$

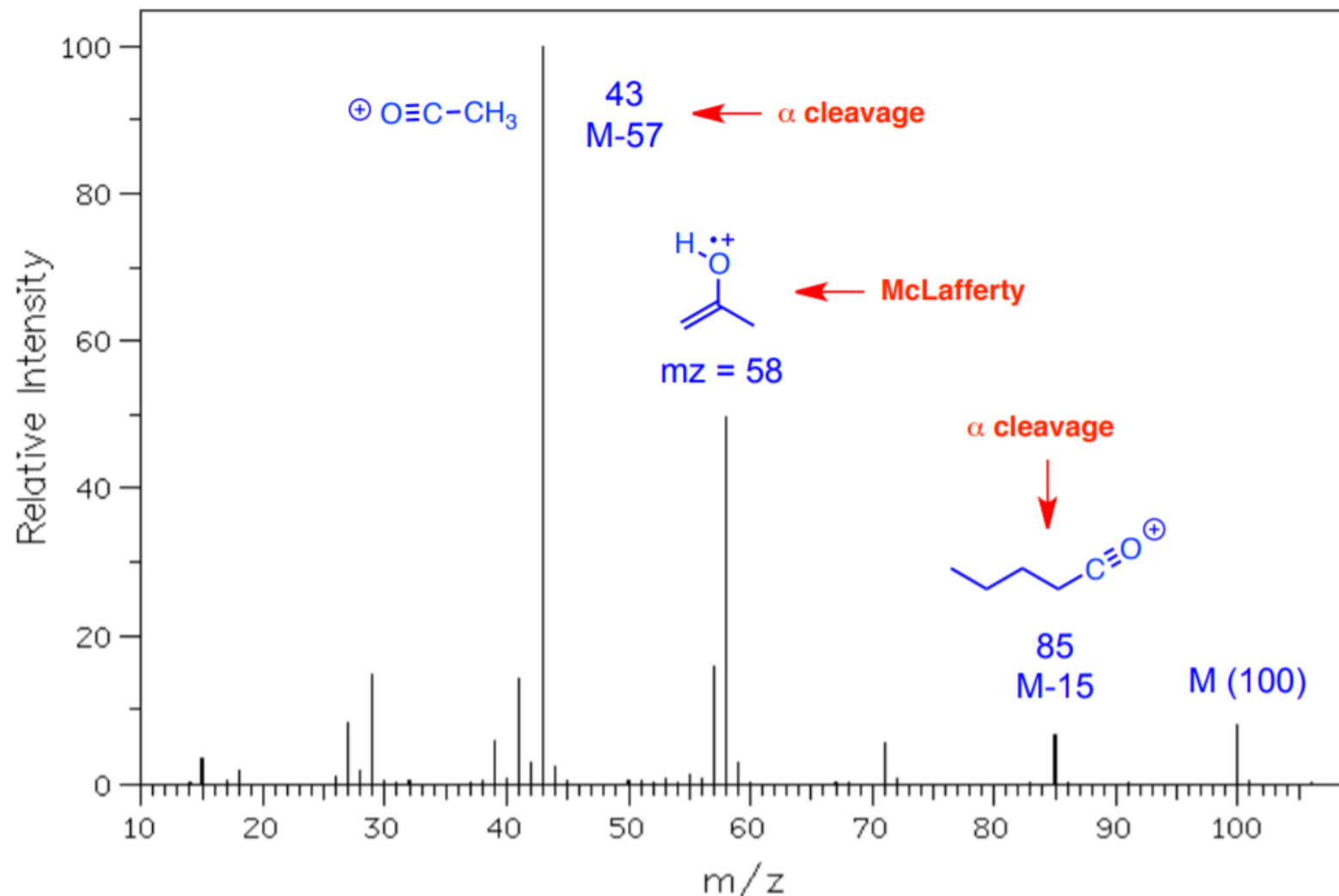
Aromatic:

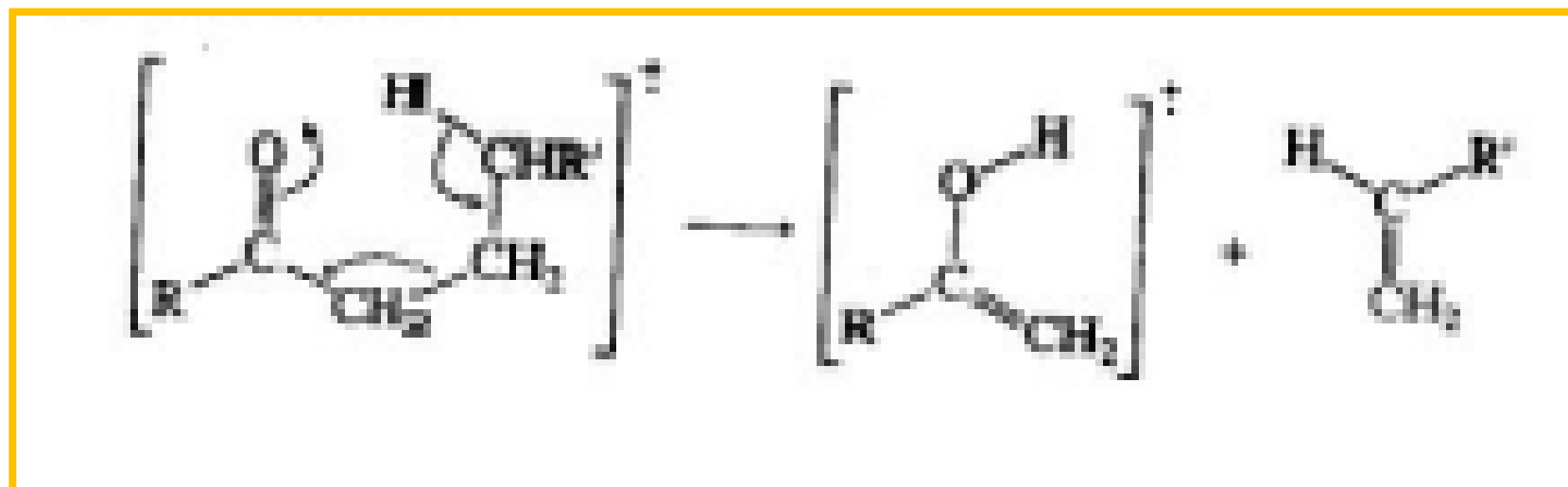
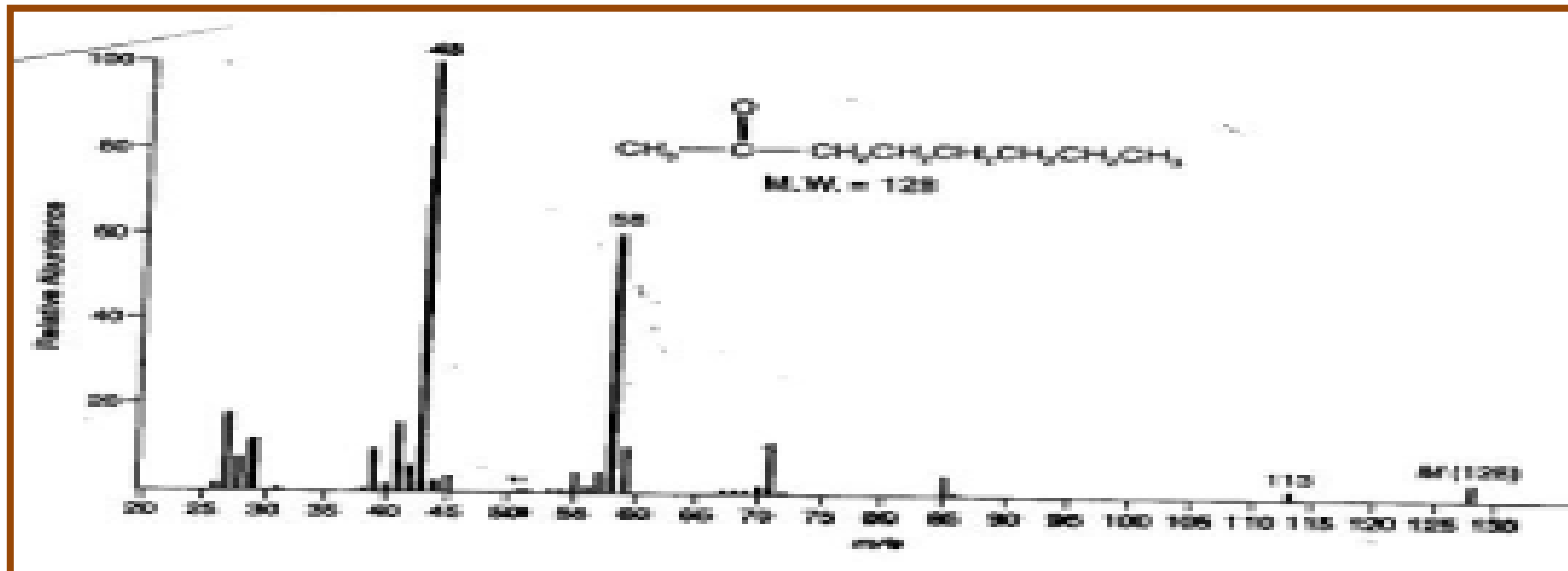
$m/e = 105, 120$

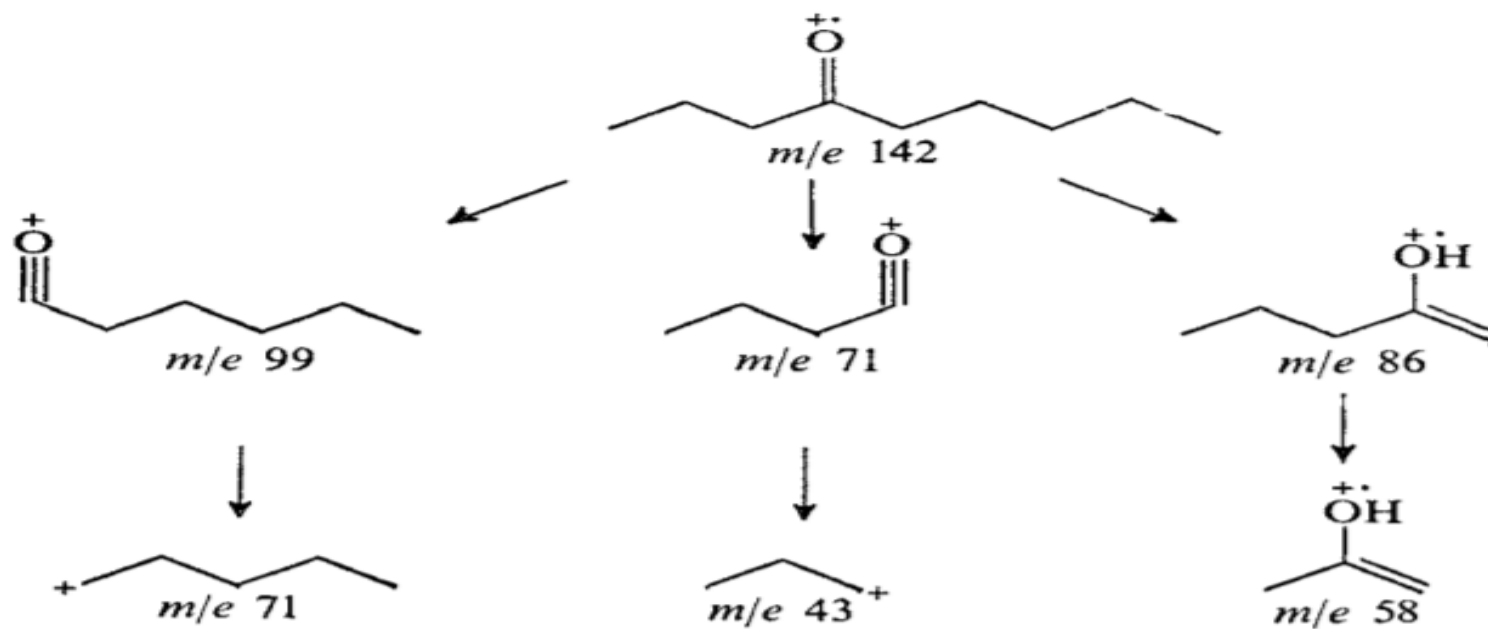
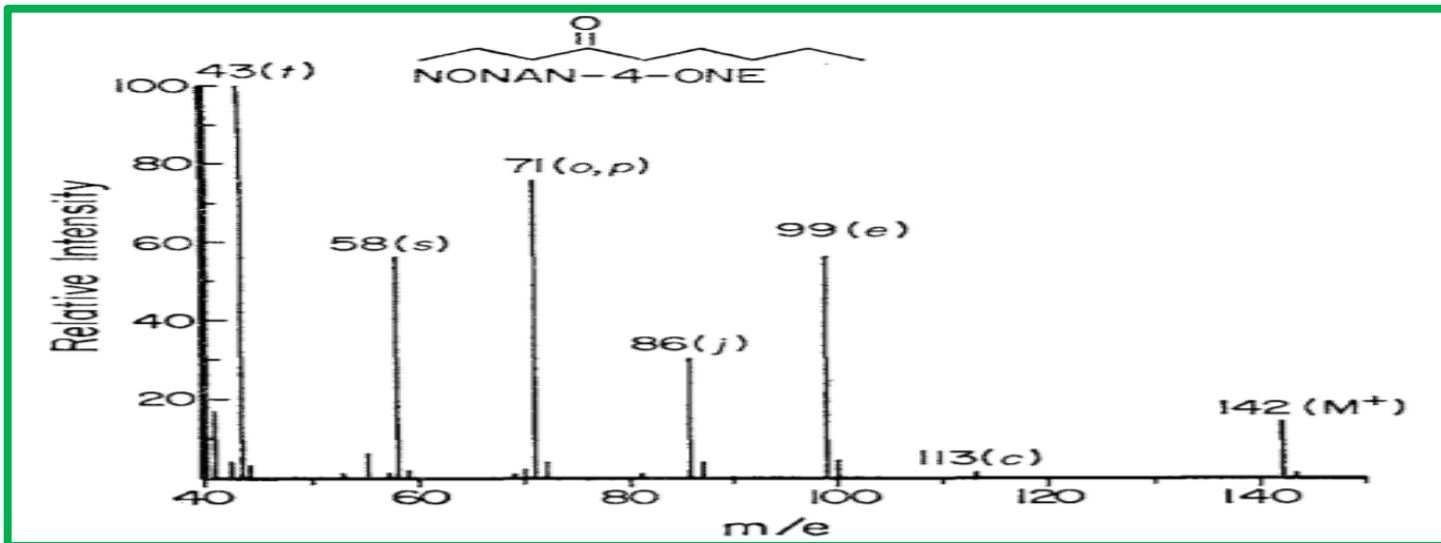




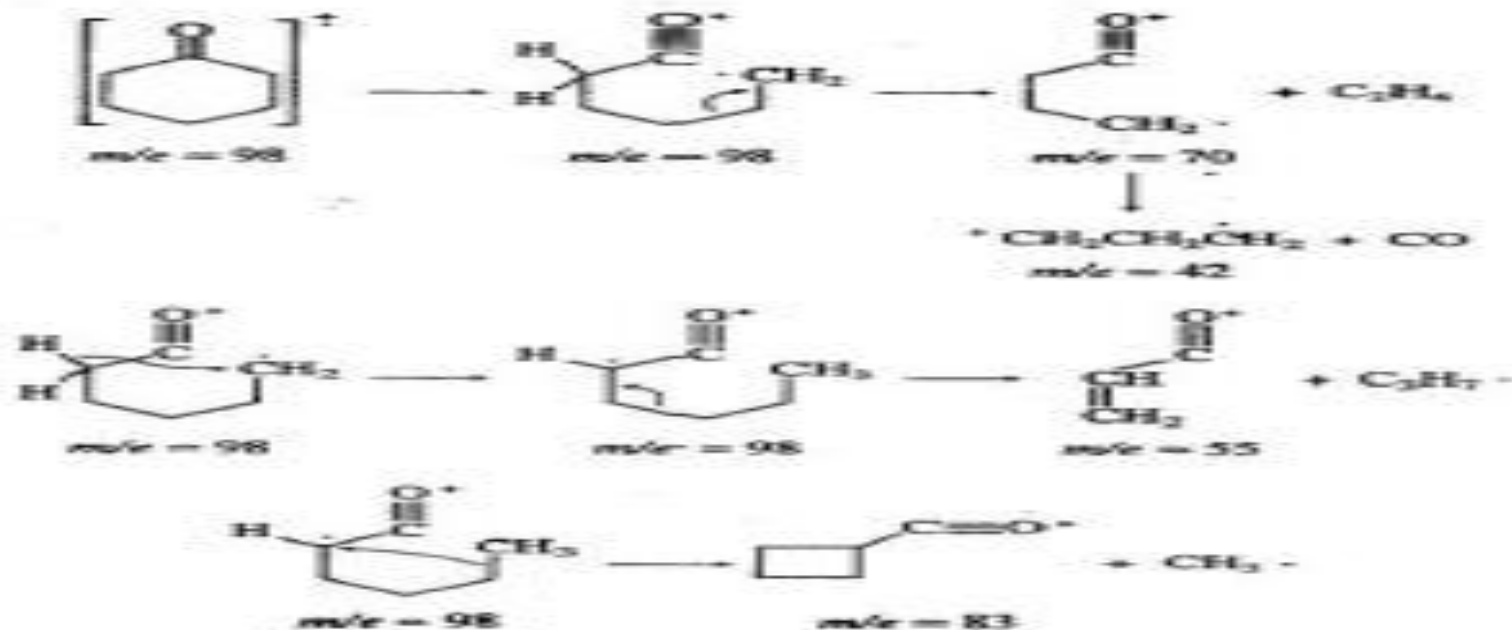
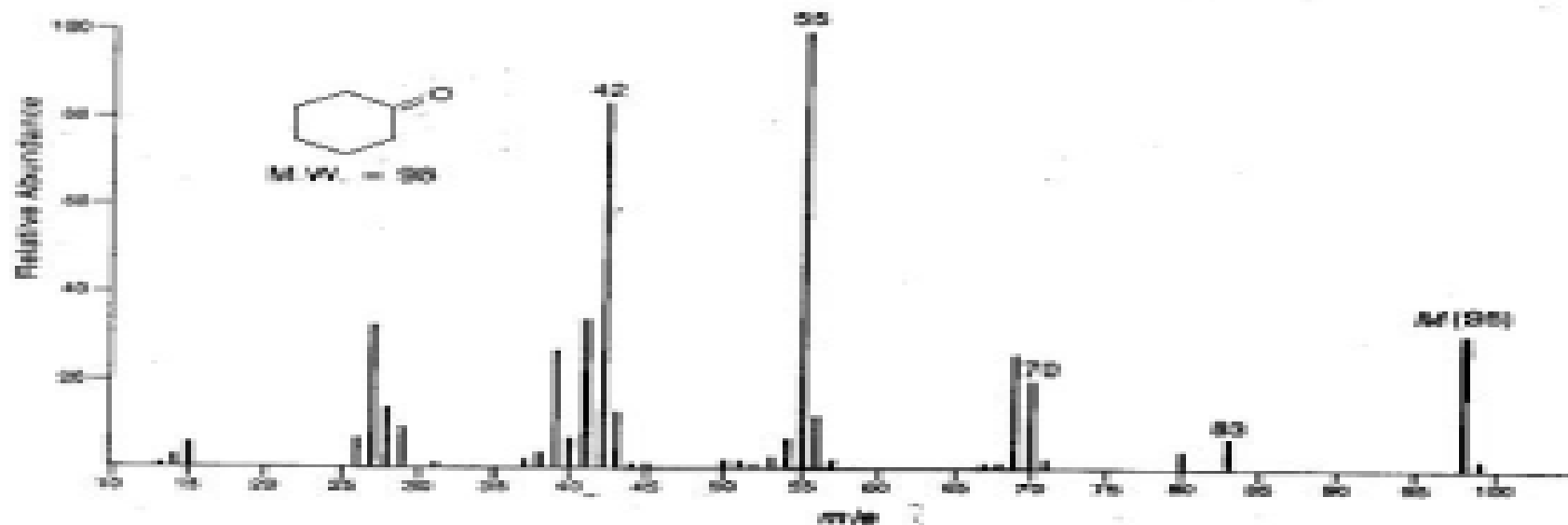
2-hexanone

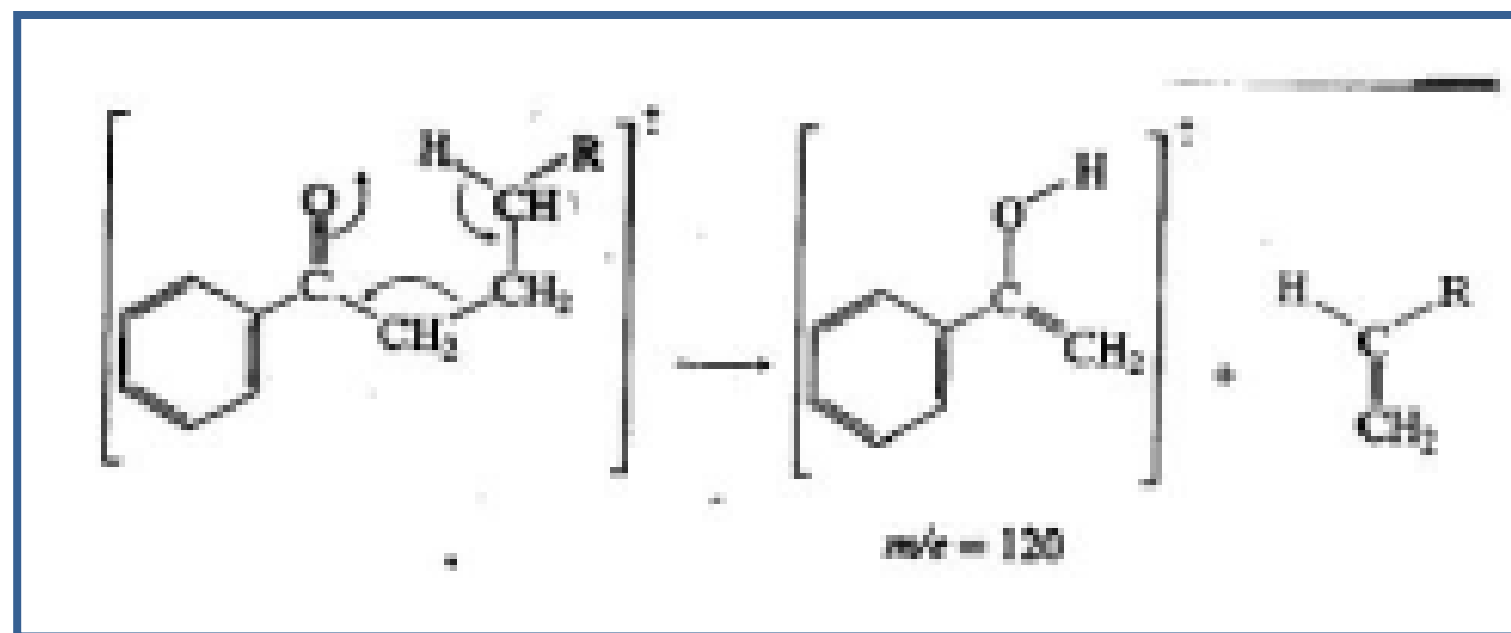
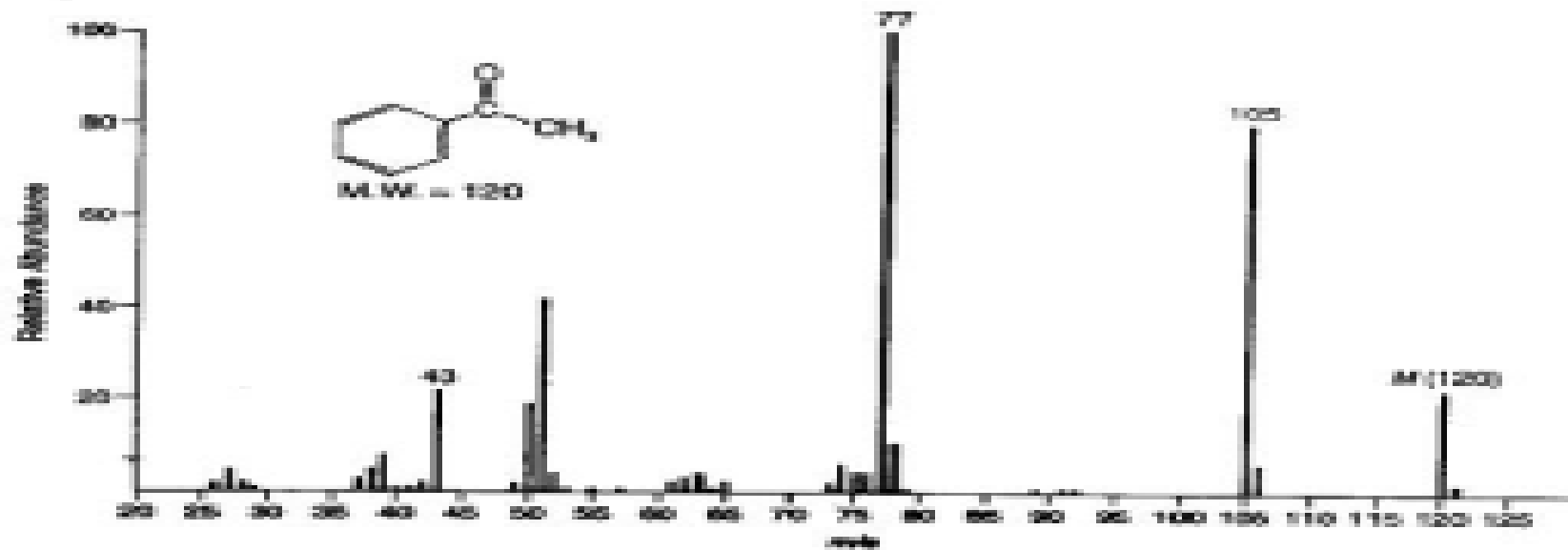






Organic Mass Spectrometry, 1971, 5, 917-933.





Αμίνες.

Οι αλειφατικές δίνουν πολύ μικρό M^+ . Ένωση με περιττό αριθμό ατόμων N έχει περιττό M.B. (Κανόνας του N) και M^+ . Σε περίπτωση περισσοτέρων R απομακρύνεται το μεγαλύτερο R. Δίνουν διασπάσεις α -, β -, στην άκρη της αλυσίδας, McLafferty. Κυκλικές, αρωματικές και ετεροκυκλικές αρωματικές αμίνες εμφανίζουν M^+ σαν βασική κορυφή. Οι αρωματικές χάνουν HCN.

SPECTRAL ANALYSIS BOX — Amines

MOLECULAR ION

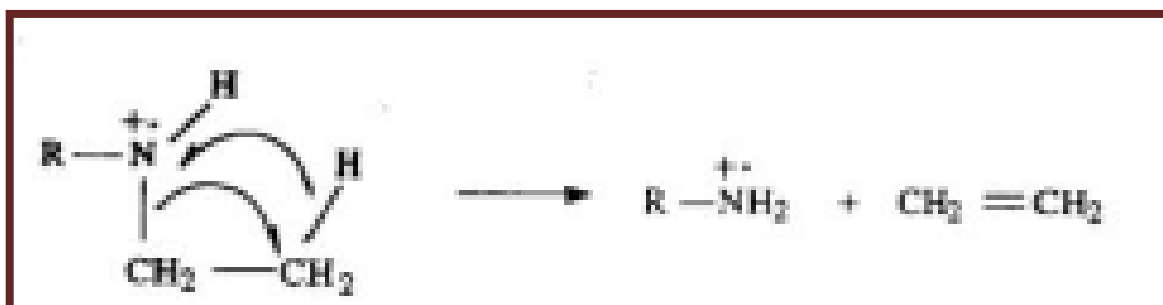
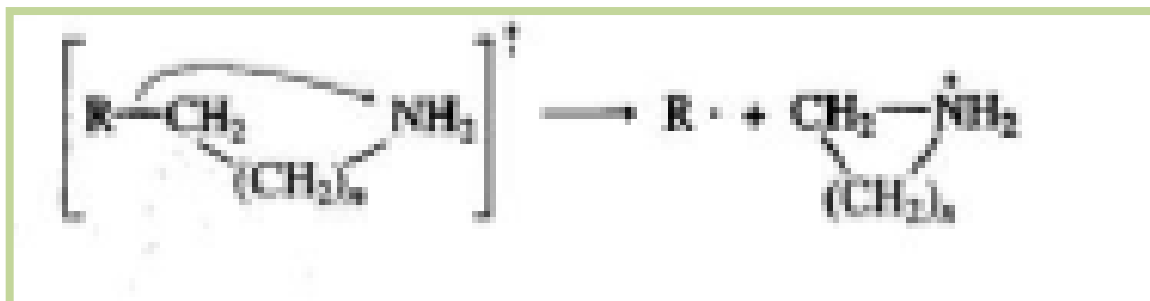
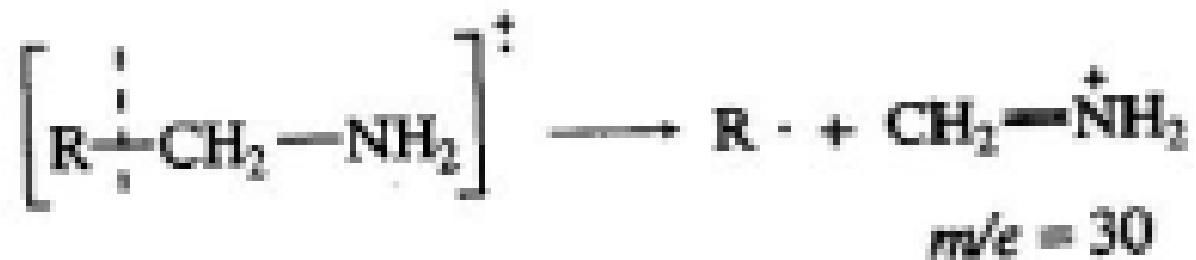
M^+ weak or absent

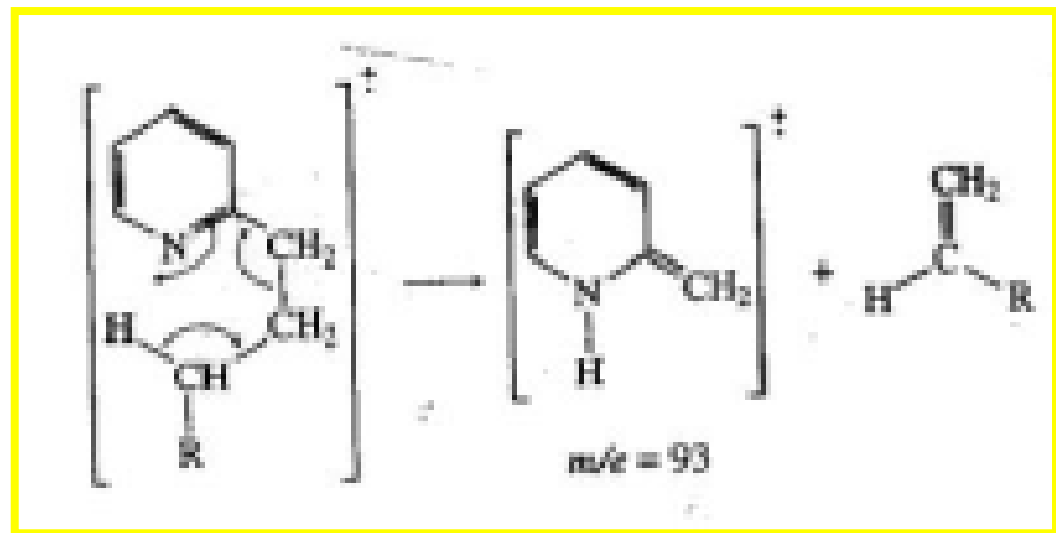
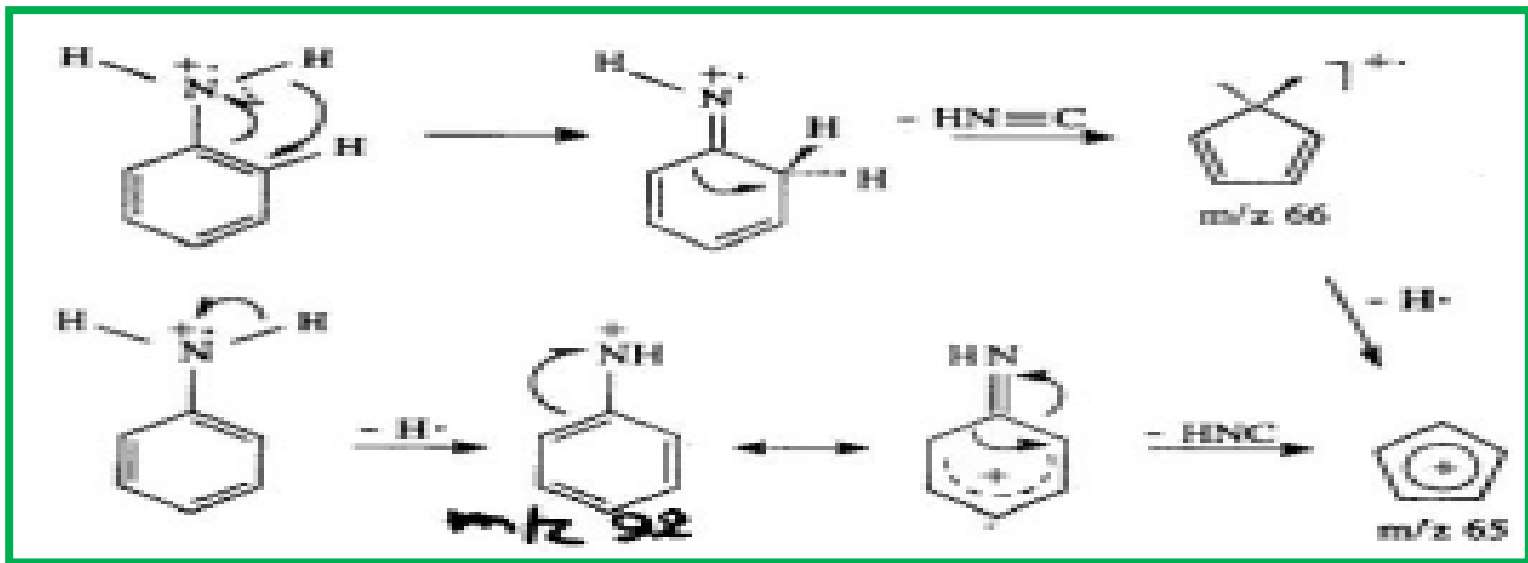
Nitrogen Rule obeyed

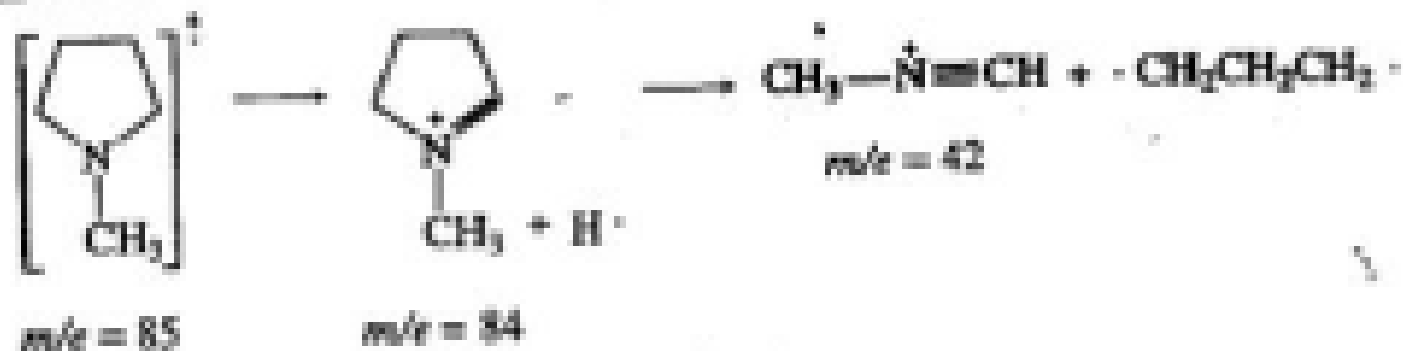
FRAGMENT IONS

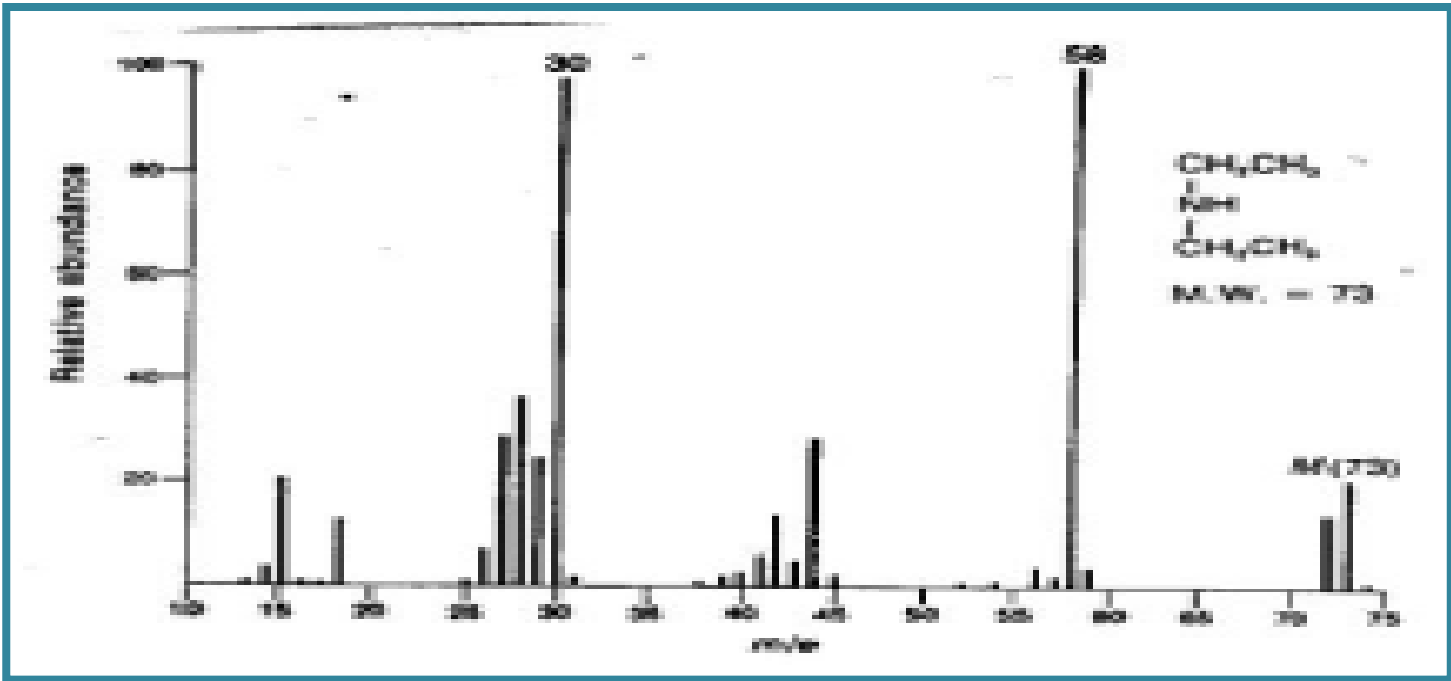
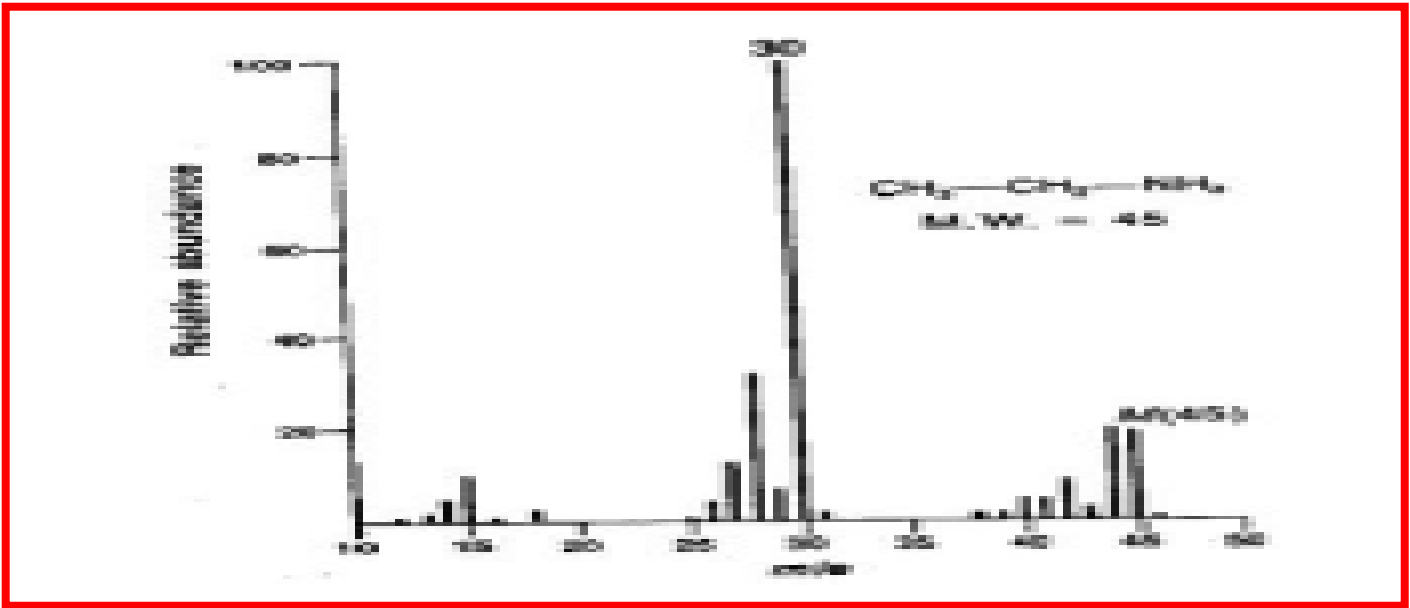
α -Cleavage

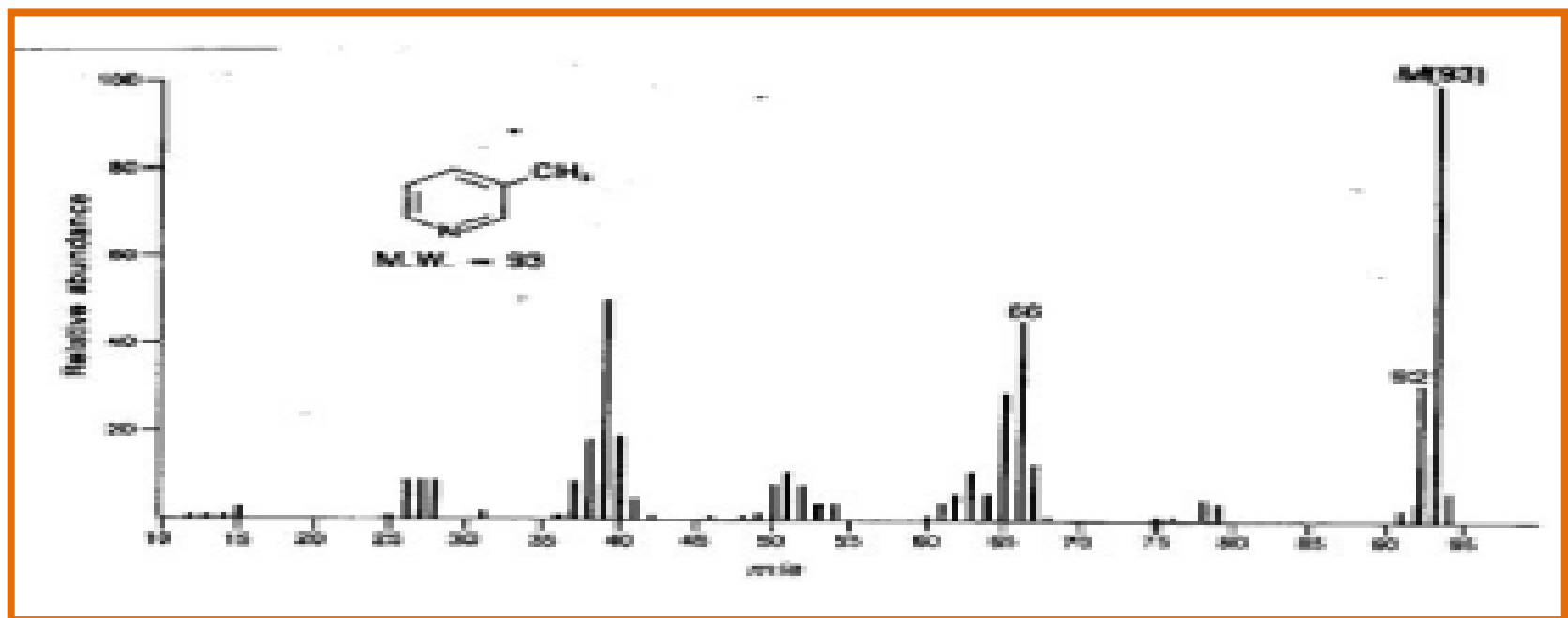
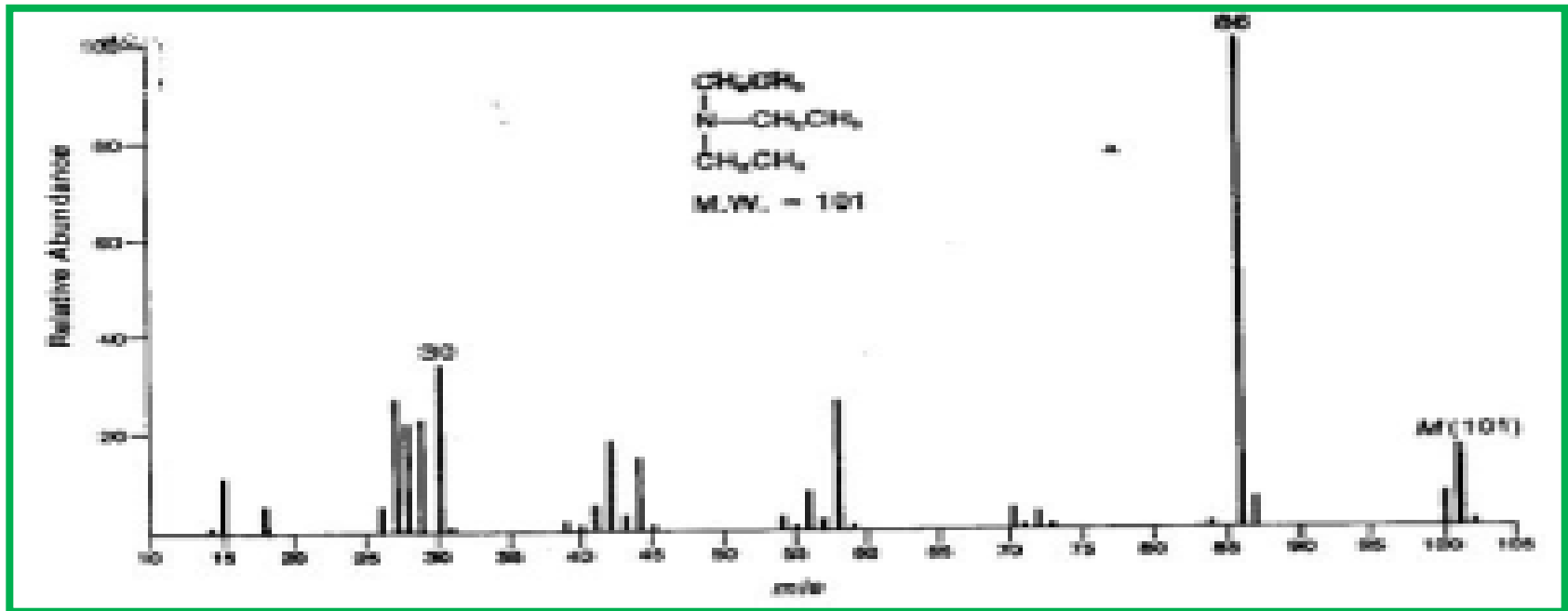
$m/e = 30$

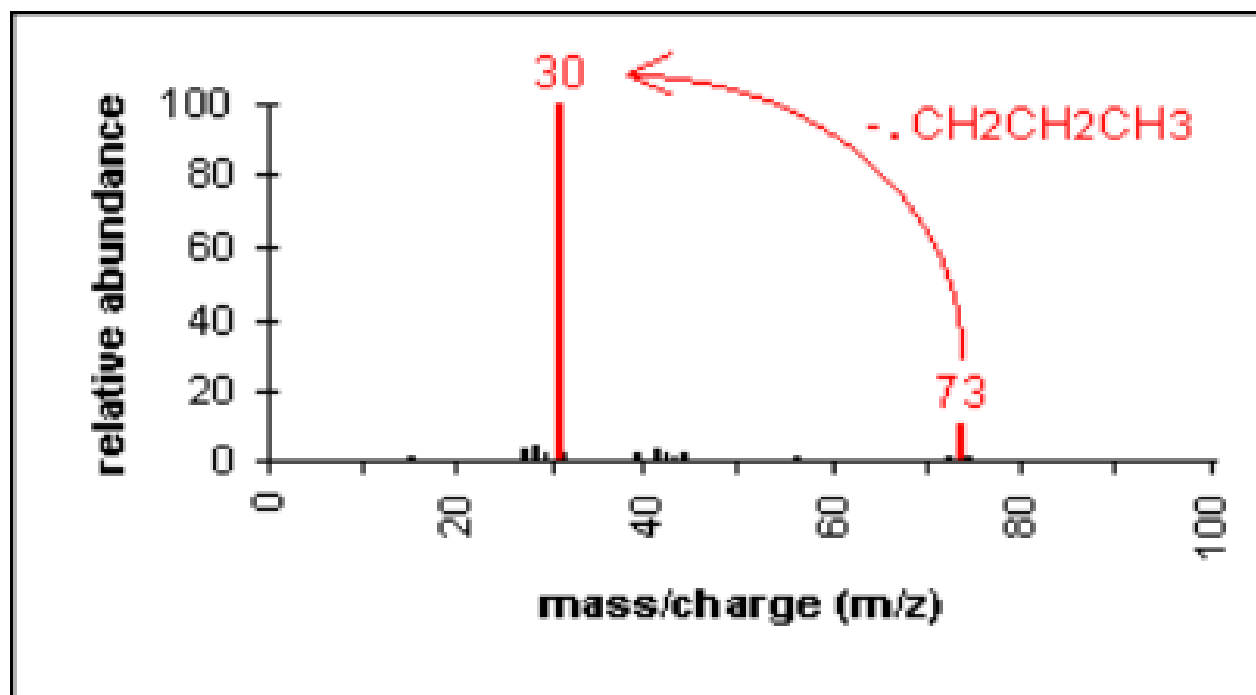
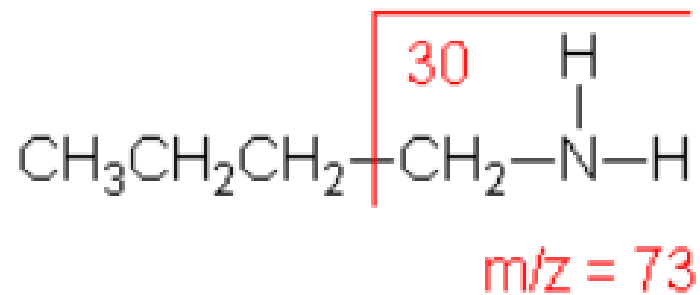




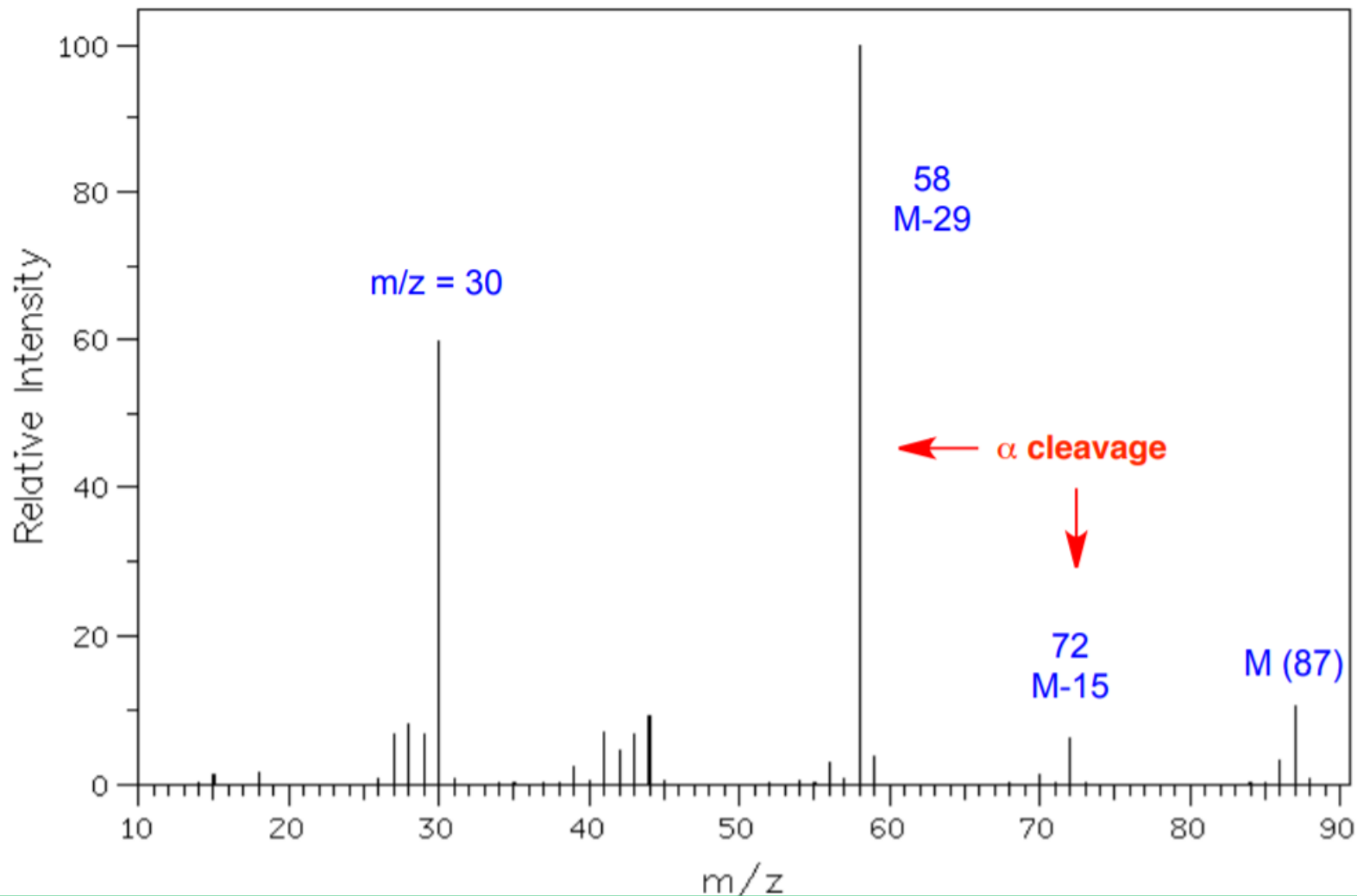


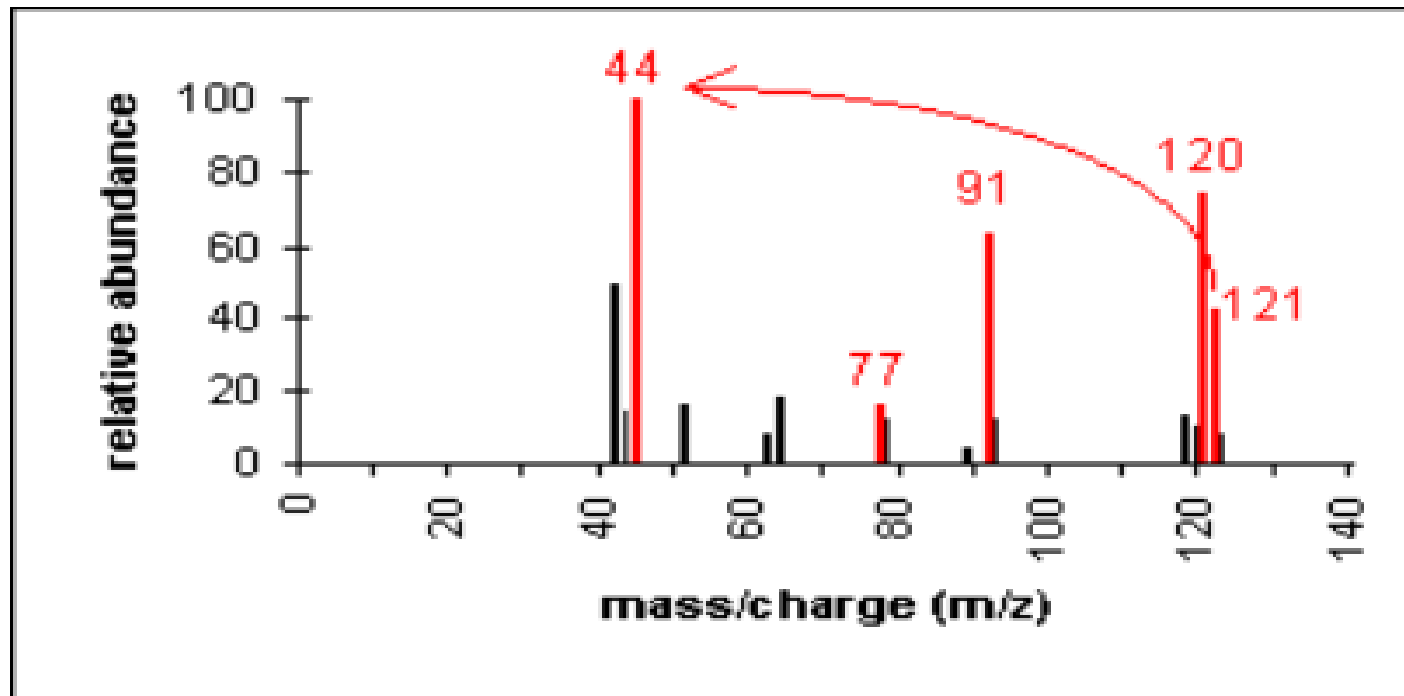
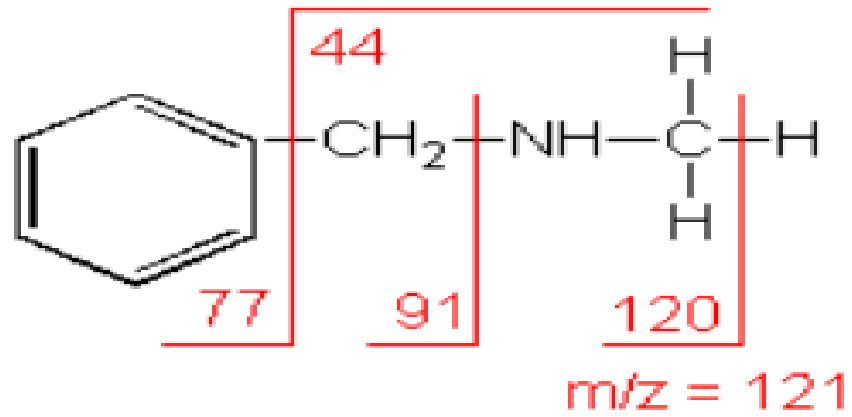




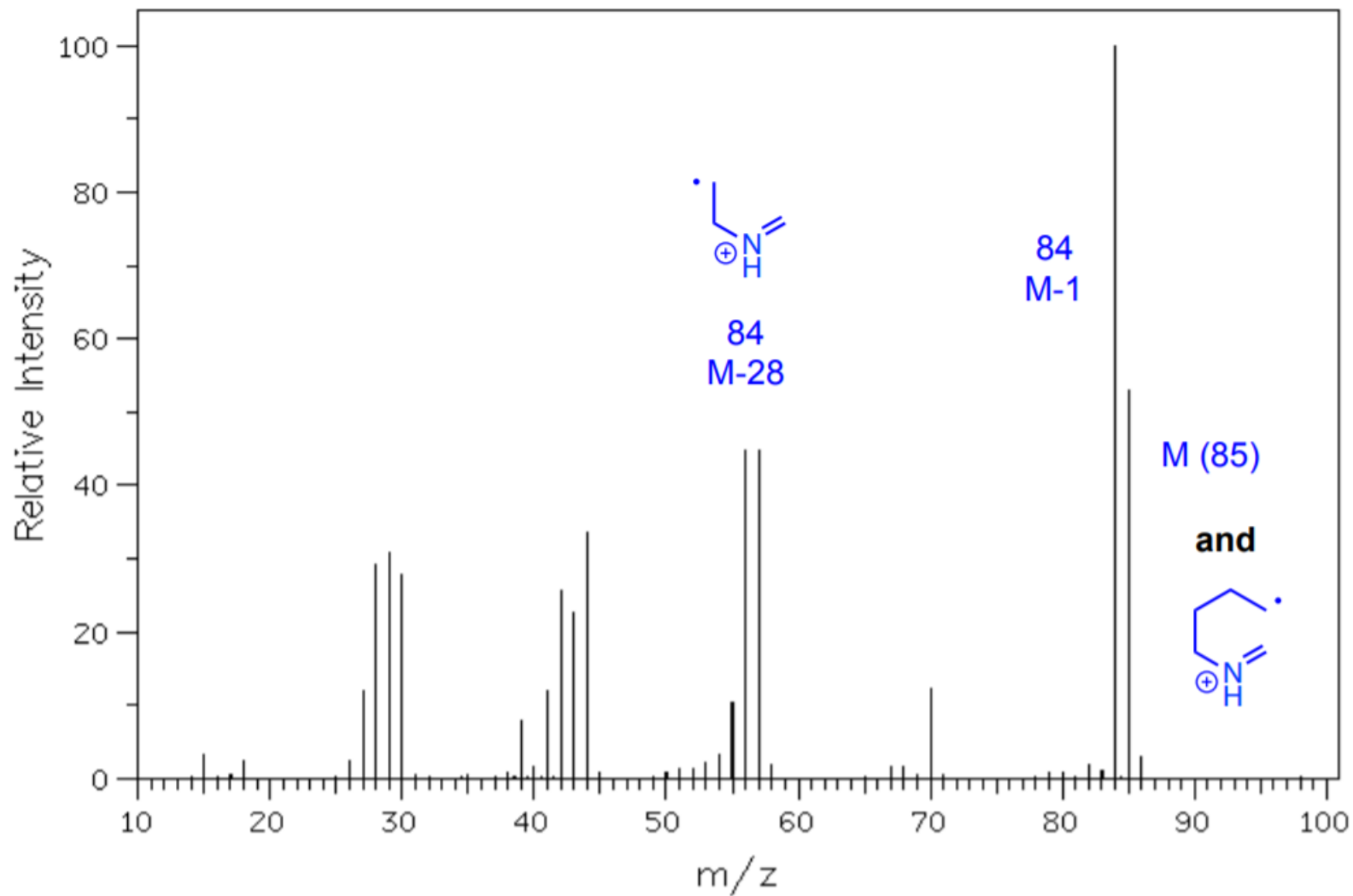
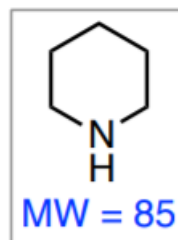


N-ethylpropylamine

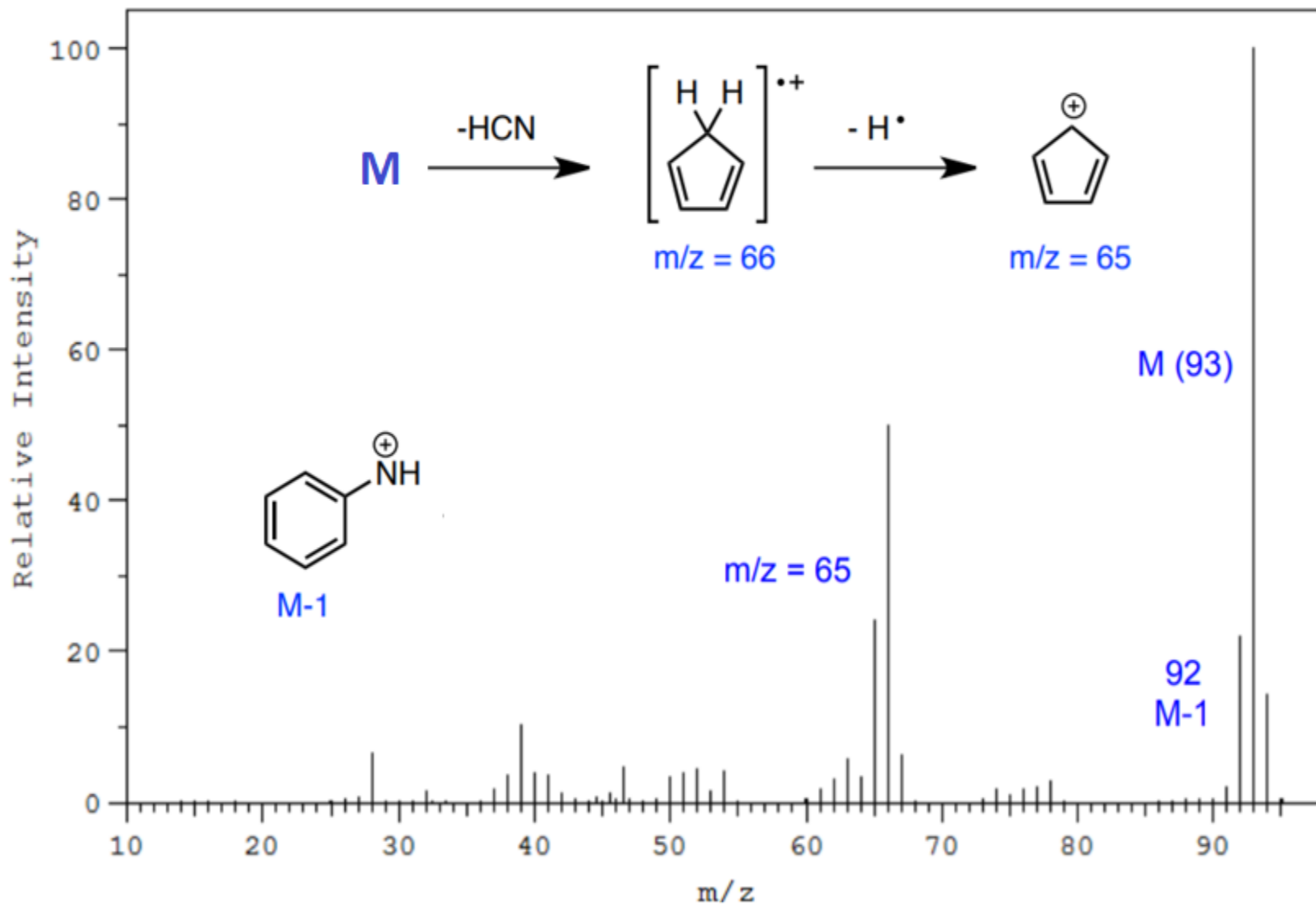




piperidine

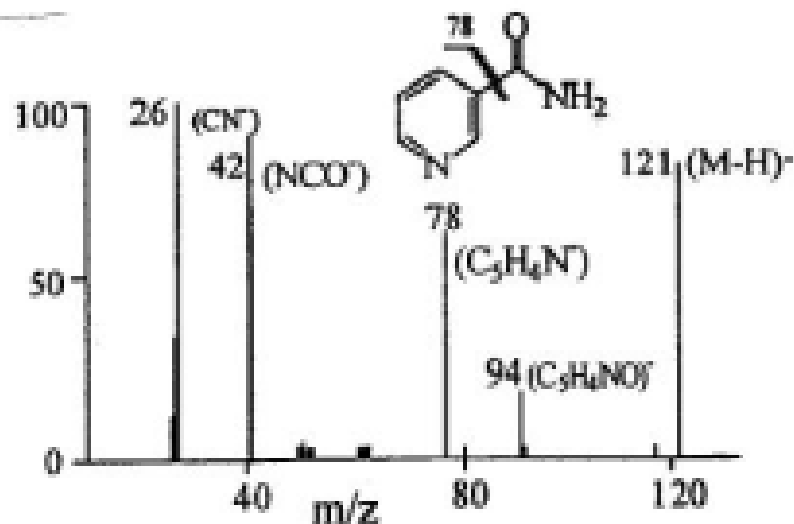


aniline

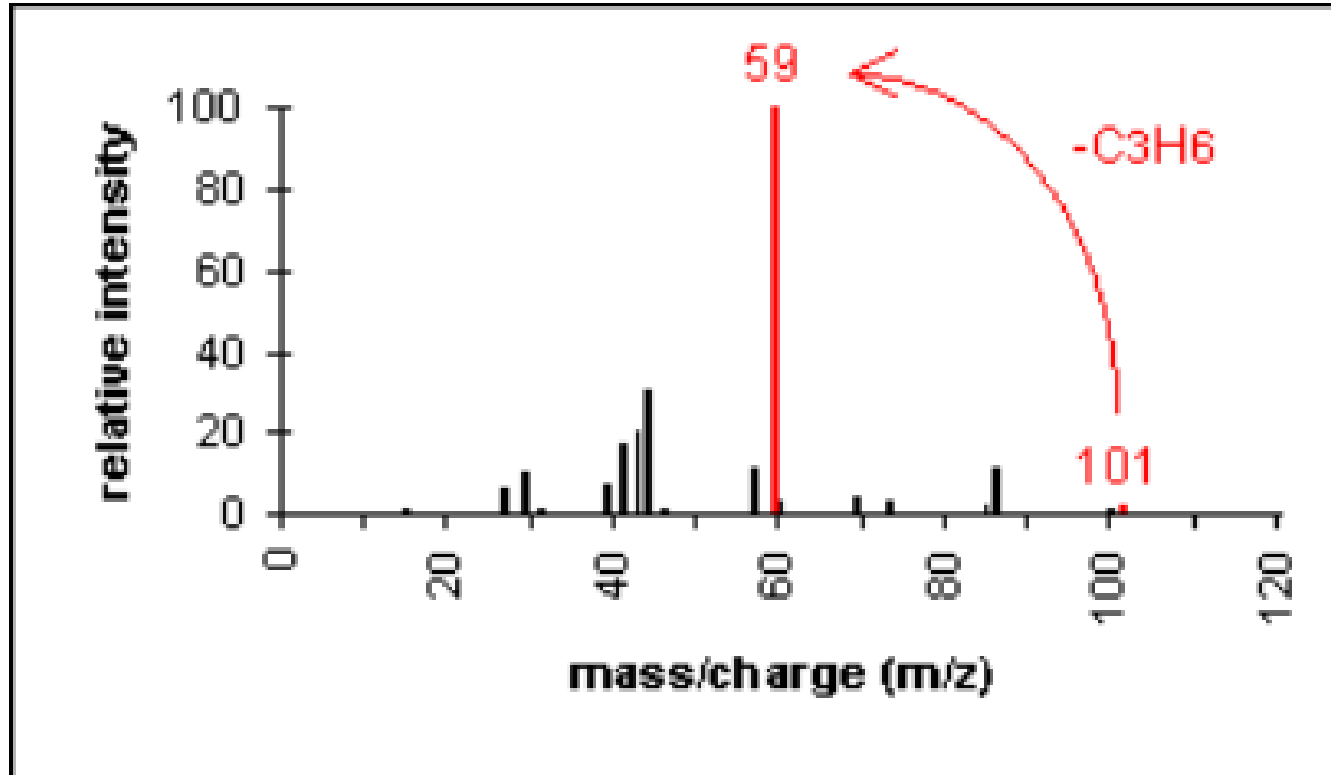
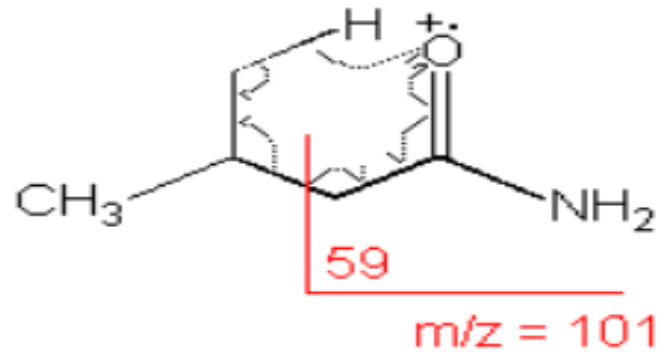


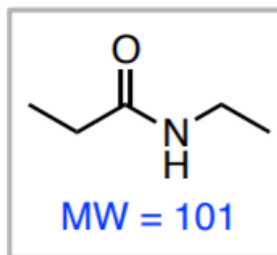
Αμίδια.

Διασπώνται ανάλογα με τα οξέα και τα παράγωγά τους (εστέρες, αλογονίδια, ανυδρίτες). Δίνουν θραύσματα α-, β-διασπάσεων και McLafferty. Πολλές φορές αποσπώνται κετόνες.

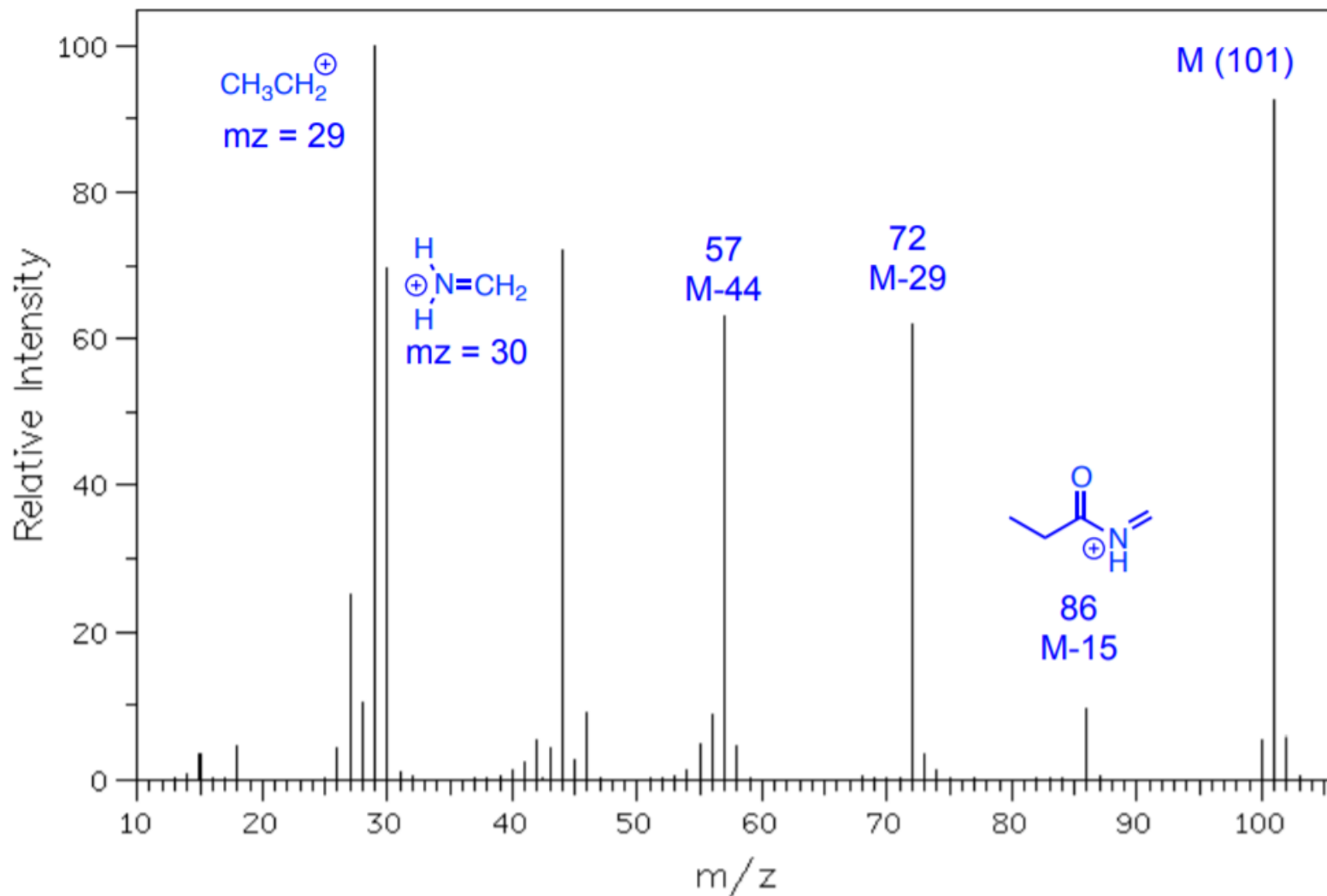


Σχήμα 2-21. Φάσμα μάζης DI αρνητικών ιόντων του νικοτιναμίδιου (Βομβαρδισμός με Ar⁺, 5 keV, δείγμα στερεό)

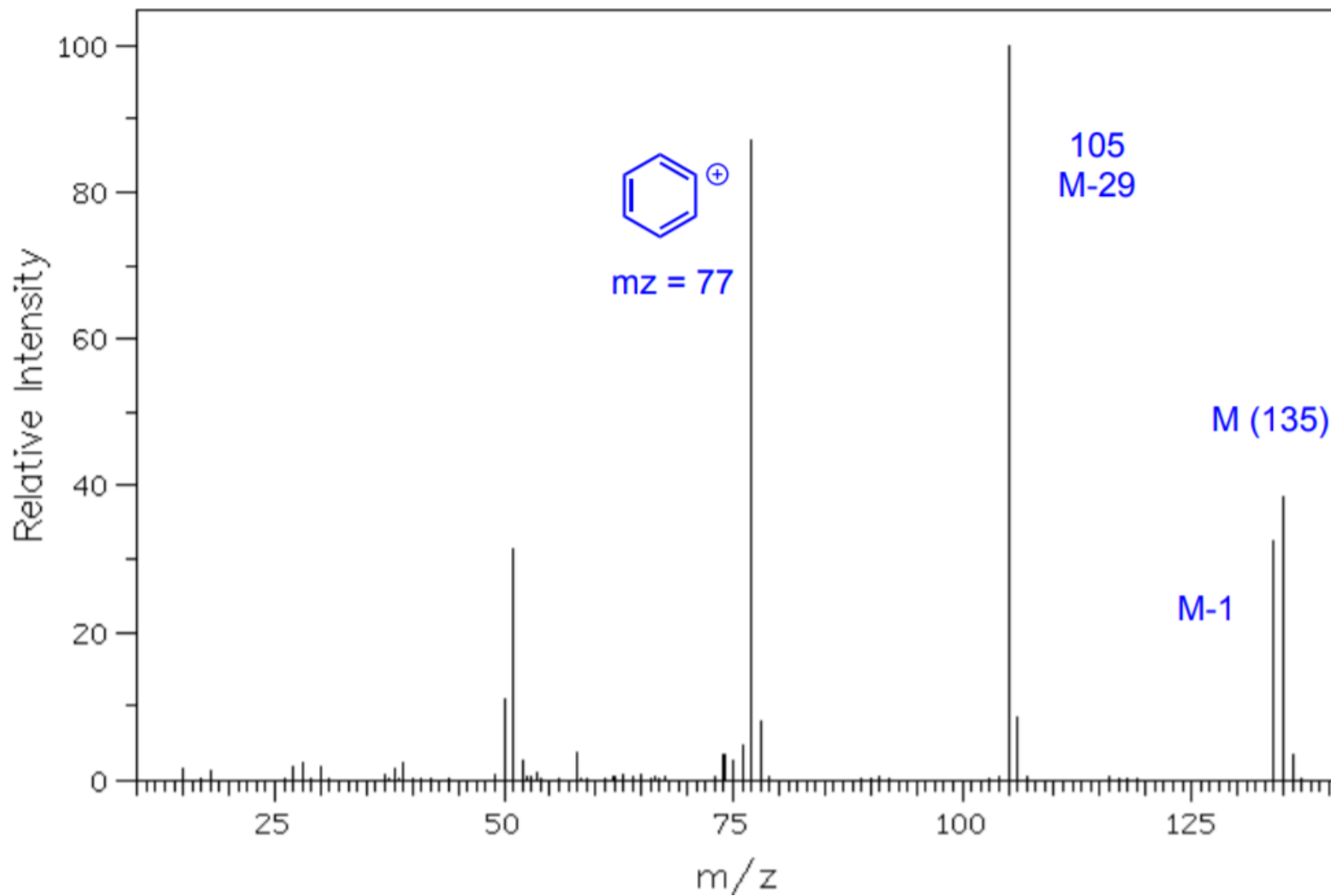
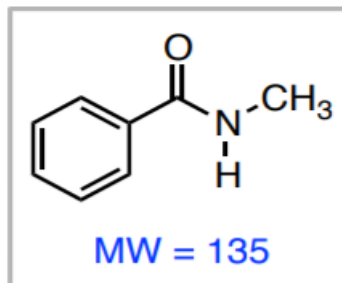


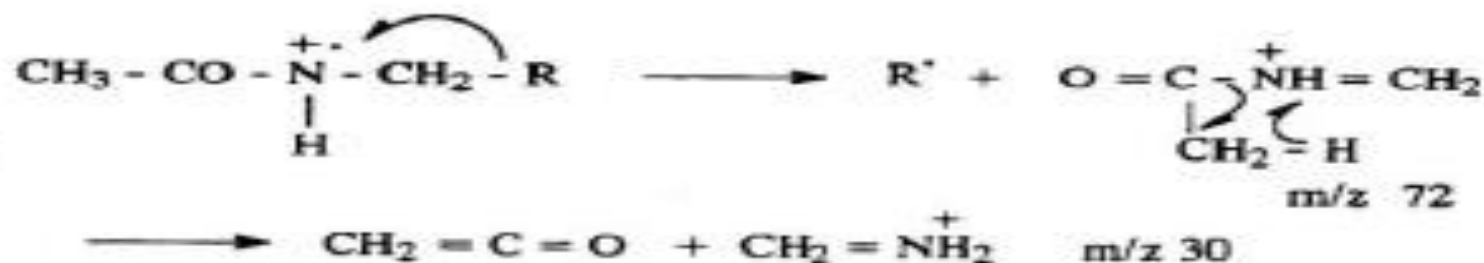
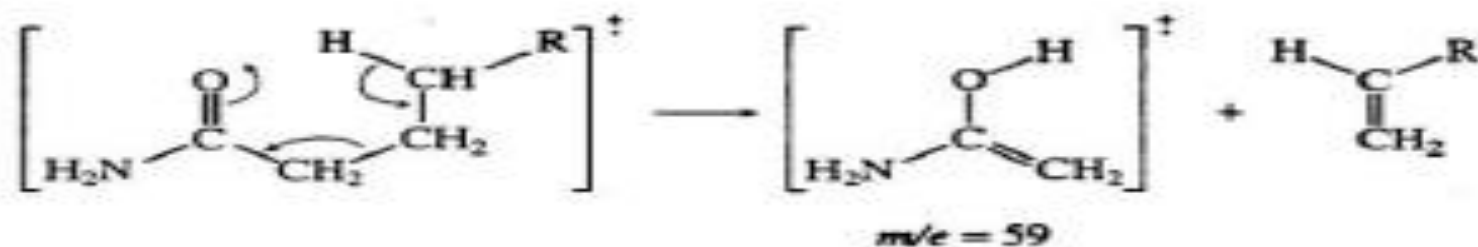
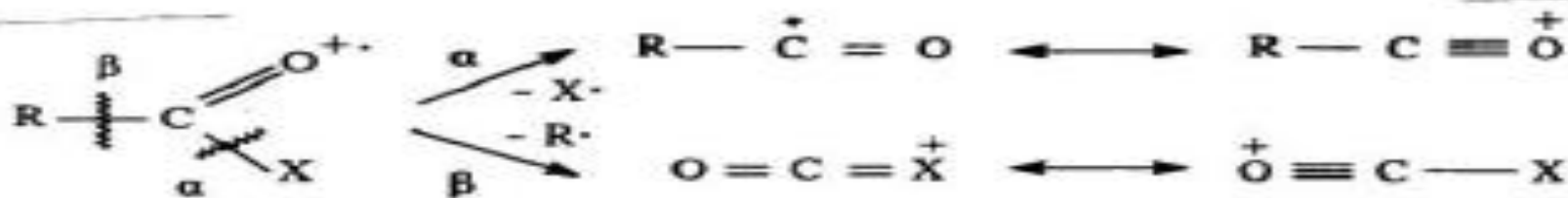
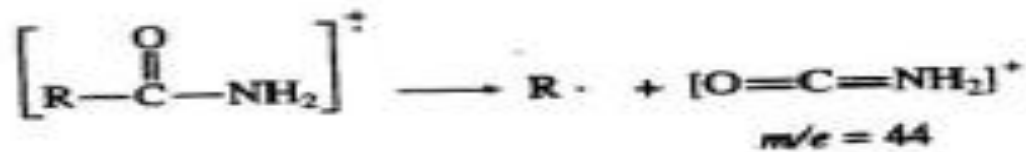


N-ethylpropionamide



N-methylbenzamide





Νιτρίλια.

Τα αλειφατικά εμφανίζουν ασθενές M^+ . Στα αρωματικά το M^+ είναι η βασική κορυφή. Στα αλειφατικά αποσπώνται $R\cdot$ ή $H\cdot$ ή θραύσματα από μετάθεση McLafferty. Στα αρωματικά αποσπάται HCN και $\cdot CN$.

