SUMMARY

Phthalimido acetic acid azides (I a-c), and phthalimido benzoic acid azides (III a-c) were newly synthesised via the corresponding acid chlorides (II a-c), and (IV a-c), respectively.

The present investigation deals with the effect of phthalimido moiety on the stability of the azides obtained, and on the mode of the acid-, and base-catalyzed decomposition.

(A) Decomposition reactions of phthalimido acetic acid azides (I a-c)

Phthalimido acetic acid azides (I a-c) undergoes base-catalyzed decomposition with aromatic amines (V a-d), and aminobenzoic acids (V e-g) to give the corresponding N-aryl-N'- [phthalimido] methyl ureas (VI a-l), and N-carboxyphenyl-N'- [phthalimido] -methyl ureas (VI m-u), respectively via Curtius-rearrangement. However, base-catalyzed decomposition with hydrazines (VIII a, and b) takes place via azido-group displacement to give phthalimido acetic acid hydrazides (IX a-f).

Decomposition of azides (I a-c) in neutral medium (water) gave the corresponding sym.N,N'-di- [phthalimido] -methyl ureas (XI a-c).

Lewis-acid catalyzed decomposition of azides (I a-c) with anhydrous $AlCl_3$ in aromatic substrates gave N-aroyl-phthalimido-methyl amines (XII a-g).

The above decomposition reactions of phthalimido acetic acid azides, were used as a new synthesitic routes for N-aryl-Ń- [phthalimido] -methyl ureas (VI a-u), sym.N,Ń-di-[phthalimido] - methyl ureas (XI a-c), and N-aroyl-phthalimido-methyl amines (XII a-g), compounds which are difficult to obtain via phthalimido methyl amines.

(B) Decomposition reactions of phthalimido benzoic acid azides (III a-c)

Base-catalyzed decomposition of o-,and p-[phthalimido]-benzoic acid azides (III a, and c) with aromatic amines (V a-d), and aminobenzoic acids (V e-g), gave the corresponding o-[phthalimido]- benzanilides (XIII a-g), and p-[phthalimido]-benzanilides (XIV a-g), respectively via azido-group displacement.

However m-[phthalimido]-benzoic acid azide (III b) undergoes base-catalyzed decomposition with the same aromatic amines (V a-d), and aminobenzoic acids (V e-g) under the same reaction conditions to give the corresponding diaryl ureas (XV a-g), via Curtius-rearrangement.

Base-catalyzed decomposition of azides (III a-c) with hydrazines (VIII a, and b) gave the corresponding phthalimido benzoic acid hydrazides (XIX a-f), via azido-group displacement.

Decomposition of azides (III a-c) in neutral medium (water), gave the corresponding sym.N,Ǹ-di-[phthalimido]-phenyl ureas (XXI a-c), via Curtius rearrangement.

Lewis acid-catalyzed decomposition of azides (III a, and c) with anhydrous $AlCl_3$ in aromatic substrates gave N-[2-aroyl phenyl]-phthalimides (XXII a-c) and N-[4 aroyl phenyl]- phthalimides (XXIII a-c), respectively via (azido-group displacement). However azide (III b) undergoes Lewis acid-catalyzed decomposition with anhydrous $AlCl_3$ in the same aromatic substrates under the same reaction conditions to give the corresponding N-aroyl- [3-phthalimido] aniline (XXIV a-c), via (Curtius rearrangement).

The above decomposition reactions of o-,m-, and p-phthalimido benzoic acid azides (III a-c) were used as a new synthesitic routes for sym.N,Ǹ-di-[phthalimido]-phenyl ureas (XXI a-c), phthalimido-benzanilides (XIII a-c, and XIV a-c), phthalimido benzoic acid hydrazies (XIX a-f), and N-[aroylphenyl]-phthalimides (XXII a-c, and XXIII a-c).

The structure of some compounds was proved by high resolution m.s.