

Different types of mutagens can be used to carry out mutagenesis in yeast. **The choice of mutagen depends on the yeast species and the desired property.**

The most common mutagens used for random mutagenesis in the laboratory are **UV-radiation and chemical mutagens.**

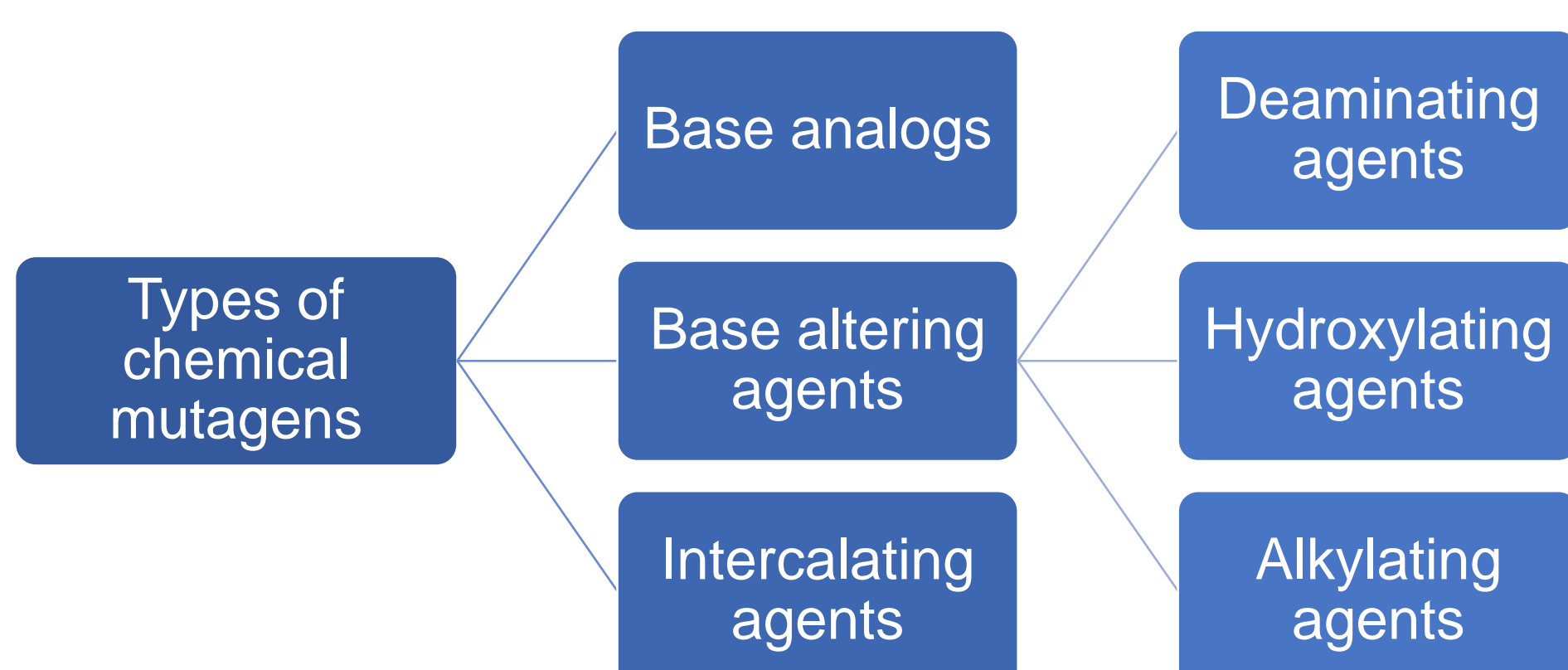
Introduction

Various production residues contain sources of carbon and nitrogen, proteins and other aliphatic compounds, so they can be used as abundant and cheap raw materials for fermentation.

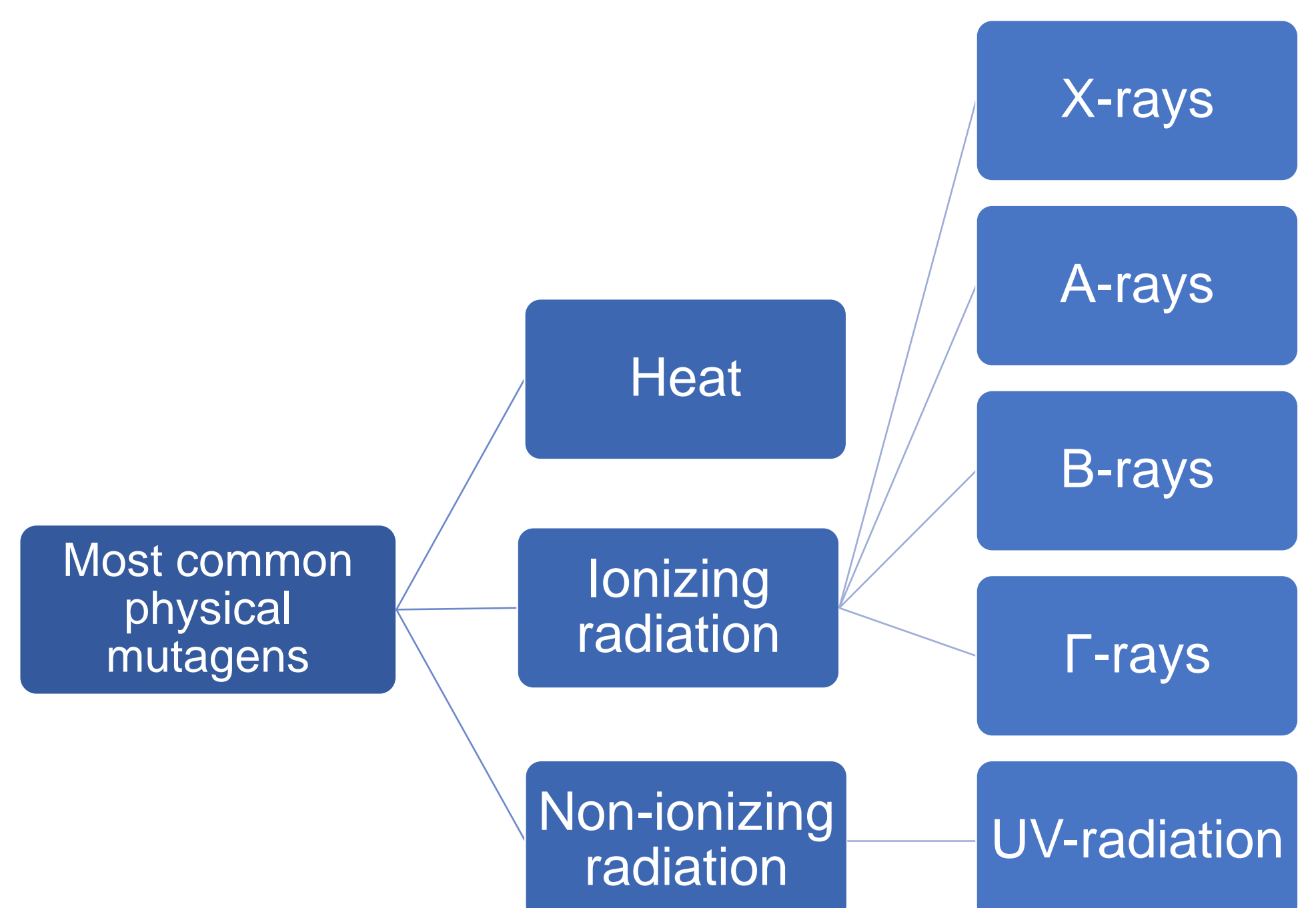
One of the most common biotechnologies in the processing of industrial by-products is fermentation using microorganisms such as yeasts. Microorganism strain improvement is an essential part of process development for fermentation products. As a result, the overall cost of the technology is reduced, productivity is increased, the ability to use cheaper raw materials is developed, or other desirable properties are improved.

Mutagenesis is defined as the treatment of biological material with a mutagen, resulting in an increase in the frequency of mutations above the level of spontaneous mutations. The basic principle is to treat yeast with a mutagen long enough to cause 50-95% cell death. After treatment, the contact with the mutagen is stopped and the yeast cells are grown in a selective media or environment.

Chemical mutagens



Physical mutagens



Biological mutagens

Useful mutagens for yeast include mutagens such as transposons, insertion sequences, TALENs, ZNFs, CRISPR/Cas9, and others. Although transposons and insertion sequences can be used for random mutagenesis, other types of biological mutagens are mainly used for targeted mutagenesis.

Viruses and bacteria can also act as biological mutagens. However, they are not usually used as mutagens under laboratory conditions because it would be difficult to stop mutagenesis.