

جامعة الانبار

كلية : الصيدلة

قسم : فرع العلوم المختبرية السريرية

اسم المادة باللغة العربية: الكيمياء الحياتية

اسم المادة باللغة الإنكليزية: Biochemistry I

المرحلة: الثالثة

التدريسي: المدرس المساعد زهير عبدالستار احمد

عنوان المحاضرة باللغة العربية: تجربة تفاعل الننهدين

عنوان المحاضرة باللغة الإنكليزية: Ninhydrin reaction experiment



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third level***



practical lab. (3) (proteins)



Experiments

2- Ninhydrin reaction:

This reaction is used to detect the free amino group in peptide compounds and amino acids.

It is a chemical powder which is soluble in ethanol or acetone at room temperature. When a ninhydrin solution is sprayed over fingerprints (typically using a simple spray bottle), the ninhydrin reacts with the amino acids in the fingerprint residue.



Experiments

Ninhydrin reaction:

Principle:

- When a solution of **ninhydrin** is heated with the **amino acid**, which is considered a reducing agent, the amino acid is oxidized by removing the **amino group** from it by means of **hydrindantine**, and the **ammonia** is released and condensed with **hydrindantine**, forming a **purple compound**.



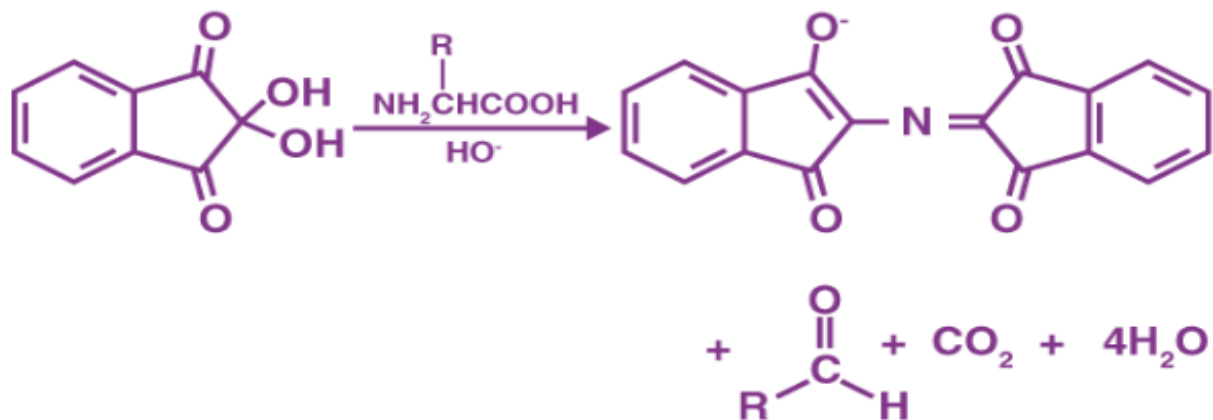
Experiments

Ninhydrin reaction ■

This test is a chemical test that is used to check ■ whether a given analyte contains **amines** or **α -amino acids**. In this test, ninhydrin (a chemical compound with the formula(**$C_9H_6O_4$**) name: 2,2-dihydroxyindane-1,3-dione) is added to a test solution of the analyte. The development of a deep blue color indicates the presence of ammonia, acids in the .primary/secondary **amines**, or amino analyte

Ninhydrin reaction:

The chemical reaction that generally occurs in a **positive** ninhydrin test is illustrated below. ■



Ninhydrin Test



Experiments

Ninhydrin reaction:

Method:

- put 1 ml of **tryptophan amino acid** into a test tube+ 2 drops of a 0.2% **ninhydrin solution**.
- heat the mixture in a boiling Water Bath for (2-5min).
- **A violet color is produced.**

Experiments

Ninhydrin reaction





Experiments .

Ninhydrin Test Result Interpretation ■

1. For ammonia, primary/secondary amines, and amino acids, deep **purple color** is obtained.
2. For hydroxyproline and proline, a **yellow** color is obtained.
3. For asparagine, **brown** color is obtained.

thank you for
listening

