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Project Title

Production of Haemodevices using Graphene Technology.

Objective

To produce exact blood test results and to manufacture haemodevices which can be recycled easily.

Method

An existing haemodevices (vacutainer tubes) are made of plastics, and with rubber closures which contains thiuram chemicals. While storing the blood specimen, these chemicals can easily react with blood and releases sulfur gases. When this blood is used for testing purpose, the sulfur gases react with blood, and this causes the tests that give false reports. For preventing this, manufacture of haemodevices which are made of graphene based biomaterials (having biocompatible properties) should be used. Another method is, adding graphene-based biomaterials while manufacturing plastic-based haemodevices such as vacutainer blood collection tubes and blood bags, this causes recycling of plastic can be easily done.

Outcome

By using graphene based biomaterials in manufacturing of haemodevices, they can reduce plastic medical waste.

By mixing graphene based biomaterials with plastic during manufacturing haemodevices, recycling of plastic after medical use will be improved.

An exact blood test reports will be obtained because there is no reaction of blood with sulphur gases. This helps to ensure patient safety management especially on lead poisoining conditions.

Due to the antithrombotic/anticoagulant property of graphene based biomaterials, this can provide the advantage in minimizing the production and utilization of different types of vacutainer tubes, minimizing the errors made by phlebotomists and also minimize the medical laboratory technicians inconvenience.

Conclusion:-

Graphene based biomaterials coated/incorporated/made haemodevices may enhance the recycling of plastic materials and leads to reduction in environmental pollution too.
These technological haemodevices are more economical and having more market potential due to its more requirement in hospitals, research centres, clinical laboratories, diagnostic centers etc.

Implementation:-

This devices can be used in hospitals, research centres, laboratories and diagnostic centres. Can also be used in blood banks for storing blood in graphene based blood bags.