

STD 10-BIOLOGY-FIRST BELL-CLASS-36 Dated 14/12/2020

Chapter – 5 Soldiers of Defense

- During accidents heavy loss of blood occurs. How can this blood loss be resolved?

Blood Transfusion

- The transfer of blood from one person to another is called blood transfusion.
- What all things should be taken care of while transfusing blood?

The following precautions should be taken while transfusing blood .

- People in the age group 18-60 can donate blood.
- Blood donation can be done once in three months.
- Blood donation causes no problem to the donor's health.
- Pregnant women and breast feeding mothers should not donate blood.
- Persons with communicable diseases (transmitted through blood) should not donate blood.

- **Blood groups are classified into four groups based on the antigens present on the surface of the Red Blood cells.**

1) **Blood Group A** : Antigen A is present on the surface of RBC .

2) **Blood Group B** : Antigen B is present on the surface of RBC .

3) **Blood Group AB** :Antigen A , B are present on the surface of RBC .

4) **Blood Group O** :Antigen A , B are absent on the surface of RBC .

- The basis of blood grouping is the presence of antigen A and antigen B in red blood cells.
- The blood group is named according to the antigens present on the surface of the red blood cells of that person.
- In blood transfusion, certain antibodies present in the blood plasma are of special importance.
- ➔ **Blood group A** consists of **Antigen A** on the surface of RBC and **Antibody b** in the blood plasma

- ➔ **Blood group B** consists of **Antigen B** on the surface of RBC and **Antibody a** in the blood plasma.
- ➔ **Blood group AB** consists of **Antigen A,B** on the surface of RBC and **Antibody is absent** in the blood plasma.
- ➔ **Blood group O** **Antigens are absent** on the surface of RBC and **Antibody a,b** are seen in the blood plasma.
- In addition to antigens A and B, another **antigen called D or Rh factor** is present in the cell membrane of red blood cells of certain persons.
- The blood groups in which **Rh factor is present** are known as **positive blood groups** and those **without Rh factor** are called **negative blood groups**.

If a person's blood group is A positive . What can we infer from this?

- Surface of RBC of the person consists Antigen A
- Blood plasma of the person consists of Antibody b
- The cell membrane of RBC consists of Antigen D

If a person's blood group is O negative . What can we infer from this?

- Surface of RBC of that person does not consists any antigens (antigens are absent)
- Blood plasma of the person consists of Antibody a,b
- The cell membrane of RBC does not consists of Antigen D (antigen D is absent)

Blood group	Antigens	Antibodies
A	A	b
B	B	a
AB	A and B	Nil
O	Nil	a and b

Can a patient receive blood from any person?

- NO,
- When a foreign antigen reaches one's blood, it stimulates the defense mechanism.
- On receiving unmatching blood, the antigen present in the donor's blood and the antibody present in the recipient's blood will react with each other and form a blood clot.
- Hence, everyone cannot receive blood from all blood groups.

Defense Mechanisms in Plants

- As in animals, plants also have mechanisms to prevent the entry of germs and to fight against those that have already entered.
- In plants, defense is made possible through structural and biochemical methods.

Wax covering, cuticle

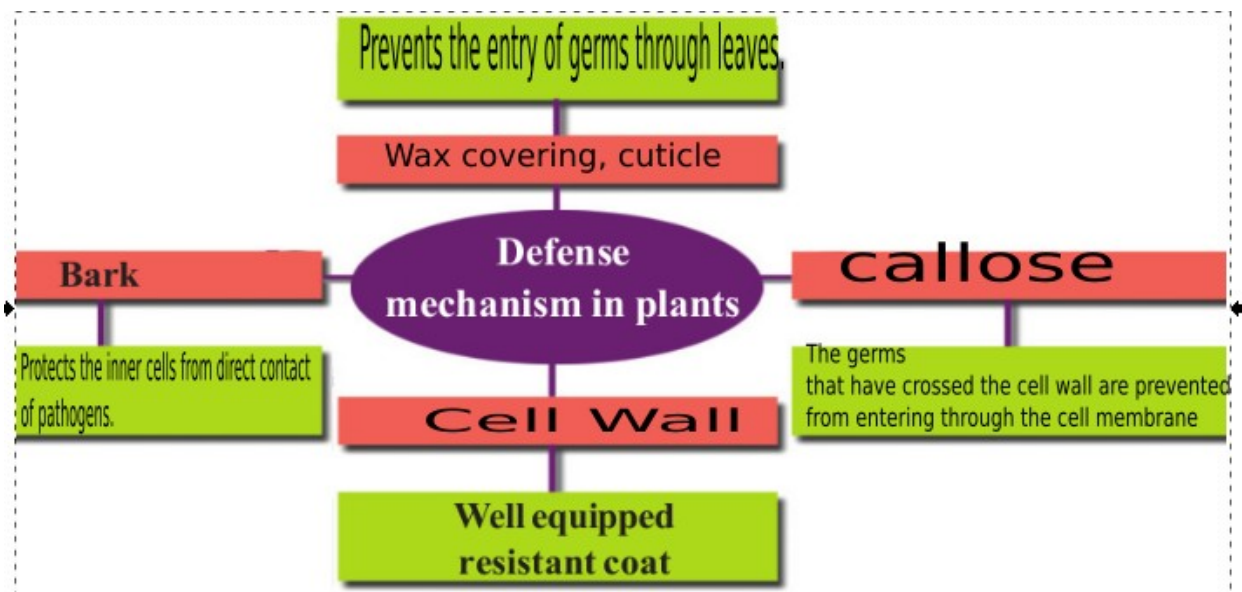
- Prevents the entry of germs through leaves

Bark

- Protects the inner cells from direct contact of pathogens.

Cell Wall

- Defense Mechanisms in Plants Well equipped resistant coat.
- Chemical substances such as lignin, cutin, suberin, etc. provide rigidity to the cell wall.
- The germs that have crossed the cell wall are prevented from entering through the cell membrane by **callose**, a polysaccharide formed in the cell wall



EVALUATION

1) Prepare a note on different kinds of blood groups based on the following indicators;

- Antigens and blood groups
- Antibody and blood groups
- Rh factor

2) Prepare a poster on greatness of blood donation .

3) Tabulate the blood groups of your family members.

Tabulate the blood groups of your family members.

വ്യക്തി / Person	രക്തഗ്രൂപ്പ് / Blood Group	ആന്റിജൻ / Antigen	ആന്റിബോഡി / Antibody	Rh ഘടകം / Rh Factor
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Prepared by SMITHA K T HST,
SSHS SHENI

visit www.shenischool.in or whatsapp 7012498606.
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