



Centenary Celebrated Sharanabashaveshwar Vidya Vardhaka Sangha's

SHARANABASAVESHWAR

COLLEGE OF SCIENCE KALABURAGI 585103

A REPORT ON

ONE - DAY WEBINAR BY STUDENT ON

"HORMONES"

CONDUCTED BY

DEPARTMENT OF CHEMISTRY

DATE : 07/04/2020

TIME : 1pm

Through : ZOOM APP

Link : <https://us04web.zoom.us/j/6550995639?pwd=YnhleE1lc1VXck9NQjplM2g0VjJYdz09>

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Guided by :

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KALABURAGI

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Participants (26)

Search

- S Swarupa Rani (me)
- AD Anusha Deshpande (host)
- MP Mangalambika Patil
- r ranoji Shikkargol
- Santosh Bhimshetty
- AC Afreen ch
- AK Aish K
- AD Aishwarya Dattankere
- A Ashwini

Chats

Invite

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Swarupa Rani

Ashwini

ranoji Shikkargol

Anusha Deshpande

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Swarupa Rani

Anusha Deshpande

Ashwini

ranoji Shikkargol

Aishwarya Dattankere

Mangalambika Patil

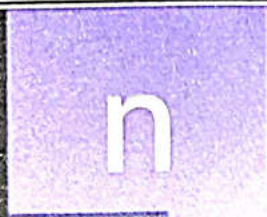
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Nikhita

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Bhagya



Santosh Bhimshetty



Megha



Geeta Yargal

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Sharana Basappa M. Police



Soubhagya Sajjan



Ratna patil



Gurukiran Malipatil

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Sushma



Reshma Malibiradar



PRIYANKA HALLAD

Hormones

Ex. Hormone $\rightarrow$ acts as to act in within.

Hormone was first discovered by William Bayliss & Ernest Starling

These are chemical messengers.
 $\therefore$ they are produced at 1 region
so the effect is felt at other.

$\rightarrow$ Hormones can be defined as the non-nutritive chemical substances that are produced in trace amounts which act as intercellular messengers.

Chemically they are proteins or amino acids or steroids.

They are always secreted in small amounts.

They are directly released into blood so it carries them to different parts of the body.

* The tissues or organs on which hormones act are called as Target tissue or Target organs

* Hormones are produced by the Endocrine glands. These are the ductless glands.

Ex: Thyroid gland, Pituitary gland, Adrenal gland, etc.

Classification:

1. Based on structure:

a) Steroid hormones

→ derived from cholesterol; produced in Adrenal cortex is - the sex hormones.

Imp fun: :- H_2O balance, sexual development, stress response.

c) Amino acid derivative hormones

→ derived from amino acids & peptides

* Thyroid hormones

→ derived from aa Tyrosine, contain

or Iodine. Parathyroid hormone, Calcitonin

a. Catecholamines

→ derived from Tyrosine can also function as neurotransmitters

ex: Noradrenaline, Noradrenaline, etc.

b. Tryptophan-based hormones

→ derived from aa. tryptophan
ex: melatonin, serotonin

c. Glutamic acid-based hormone

→ ex: histamine

d. Fatty acid derivative hormones/lipids

→ most abundant precursor is fatty

acid arachidonic acid

ex: Prostaglandins (kidney), prostacyclin, Leukotrienes, thromboxanes

Based on solubility

a. Lipid soluble hormones

→ ex: Steroidal hormones

b. water soluble hormones

ex: amino acid-based hormones

Based on target

a. Tropic hormones

→ stimulate other endocrine glands
generally released from pituitary gland

Ex: GnRH, TSH, STH, ACTH, etc

or Non-tropic hormones

→ work on other cells except endocrine glands

Ex: Calcitonin, Adrenaline, Oxytocin, etc

Synthesis & importance of :-

• Adrenaline

→ Adrenaline is also known as epinephrine

→ It is synthesised in the adrenal medulla of adrenal gland

→ It prepares the body to face emergency situations. Hence it is also called as Emergency hormone or 3F hormone i.e. Fight, Flight or Fright

→ During such situations it increases heart beat & intensifies contractions

→ It also increases blood pressure

Blood flow to brain & muscle cells

- It reduces blood flow to digestive tract & kidneys
- It dilates respiratory passages & stimulates respiration & glycogenolysis.

Thyroxine

- Thyroxine is synthesised by the follicular cells of the thyroid gland.
- T_3 (triiodothyronine) & T_4 (tetraiodothyronine) together constitute the thyroxine.
- It regulates BMR (basal metabolic rate) and growth in children

→ It also increases the rate of oxidation & energy production in cells. Hence also called as

Calorigenic hormone

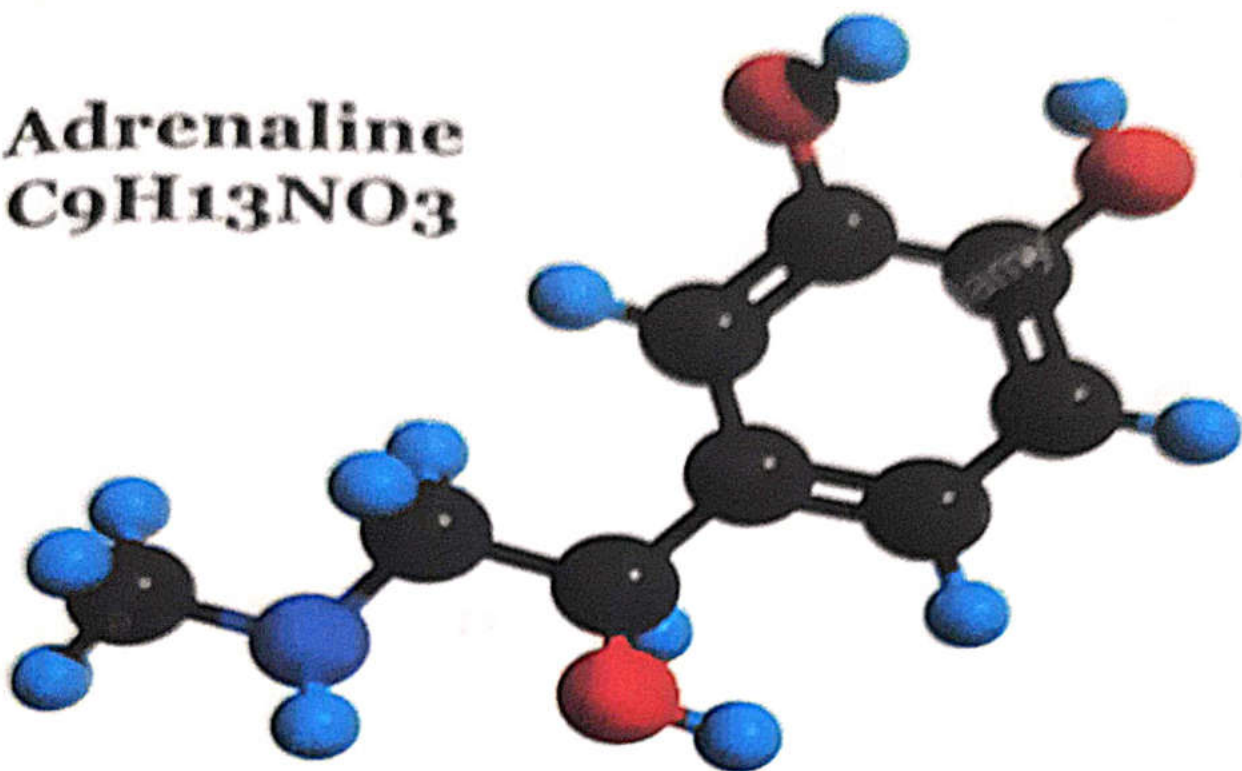
- Regulates carbohydrate & lipid metabolism

- Also increase the rate of protein synthesis

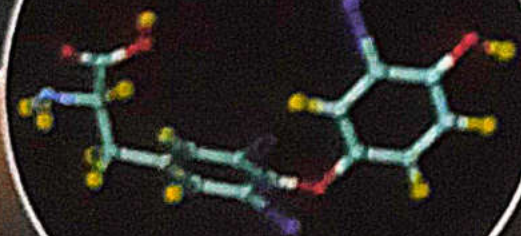
→ It is responsible for functioning of CNS & mental alertness

* BMR - no. of Cal required to keep your body functioning at rest

Adrenaline
C₉H₁₃NO₃



T₃



T₄



Biological importance of :-

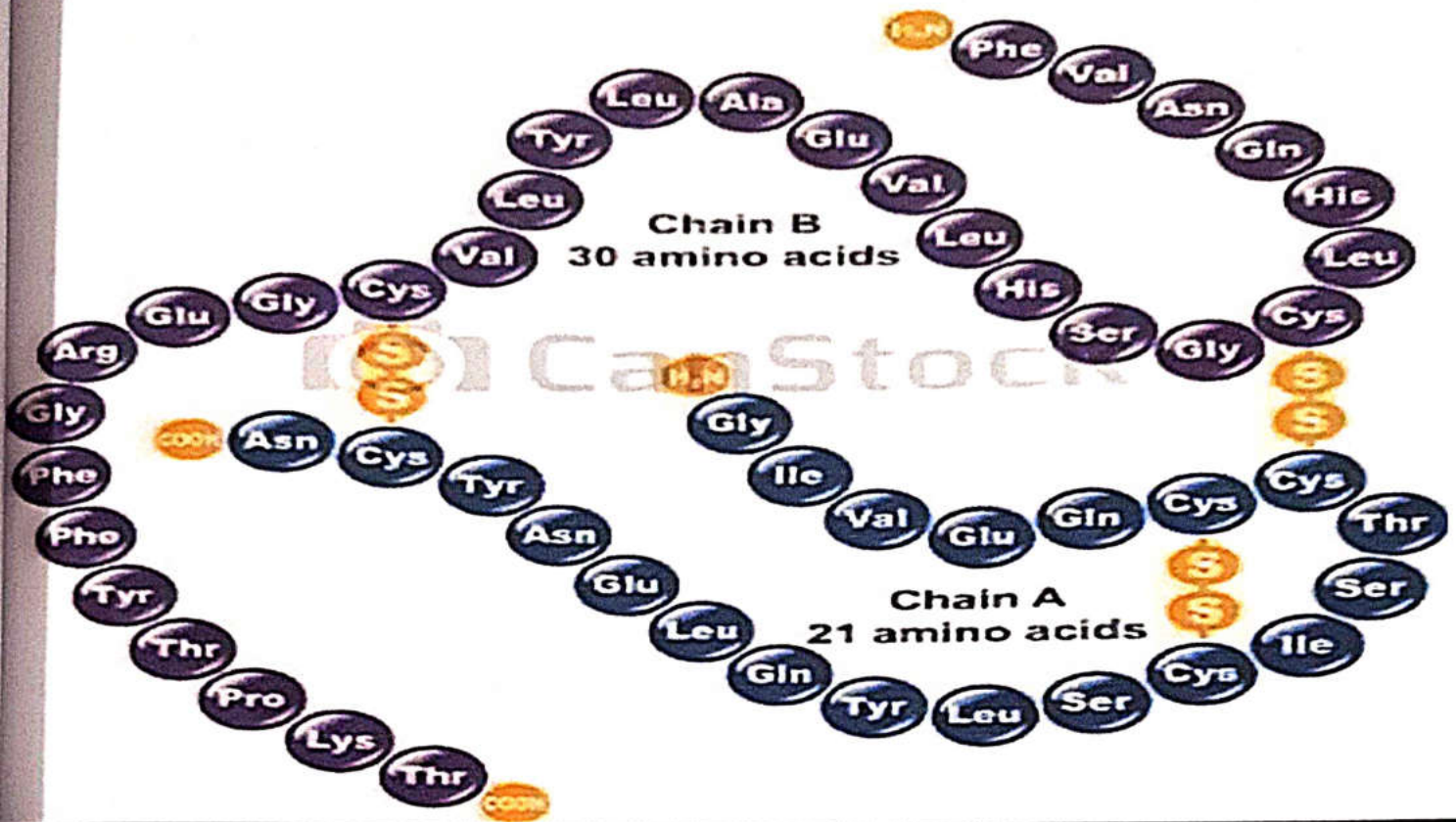
i. Insulin

- produced by the β cells of islets of Langerhans i.e. the endocrine part of pancreas
- In presence of insulin liver cells convert excess glucose into glycogen (glycogenesis)
- It also converts excess of glucose into fat (lipogenesis). This reduces blood sugar level. Hence it is called hypoglycaemic hormone
- Hyposecretion of insulin causes diabetes mellitus if the condition is called as hypoglycaemia.
- Hypersecretion of insulin causes hyperinsulinaemia.

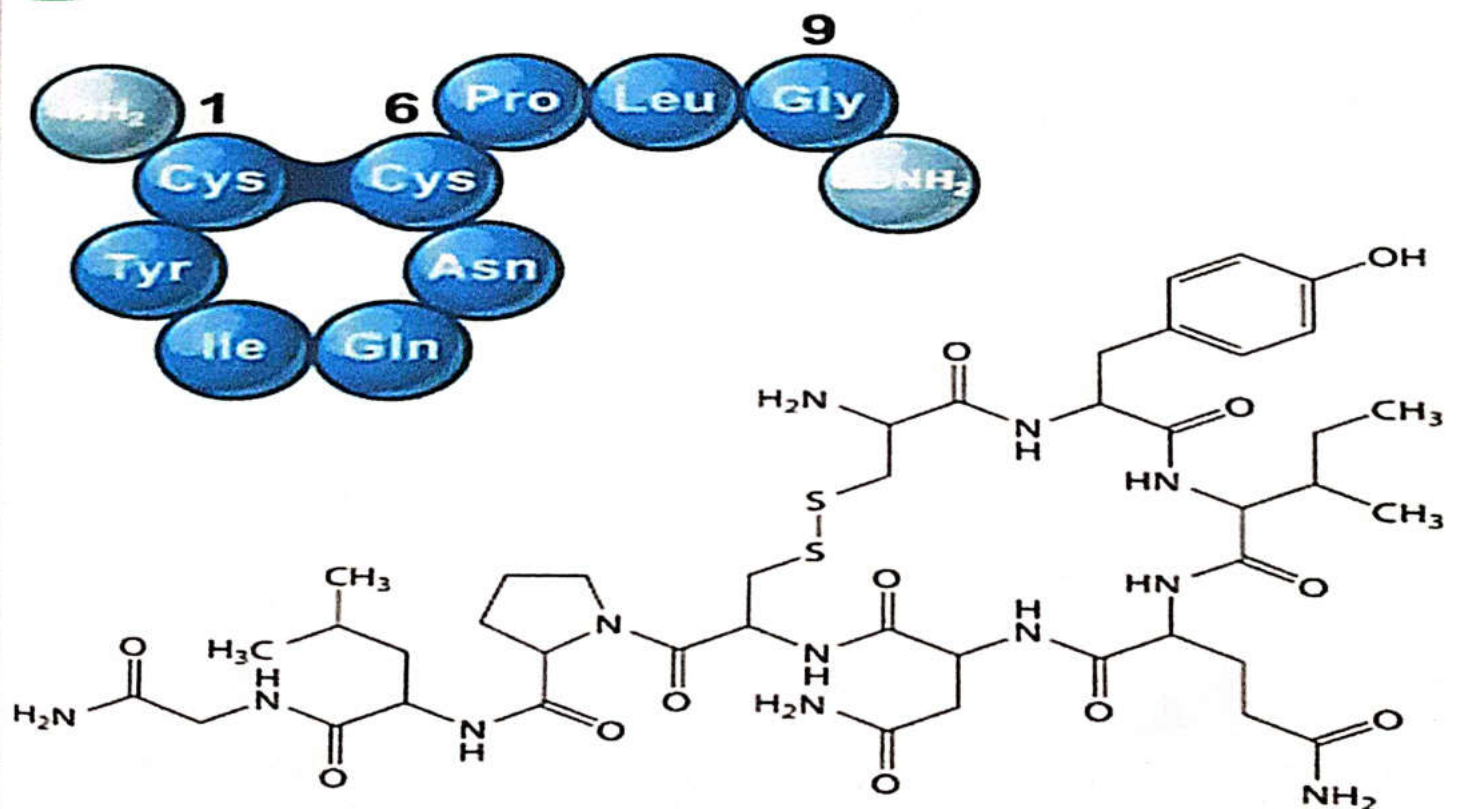
ii. Oxytocin

- It is produced nucleus of certain neurosecretory cells of hypothalamus and stored in posterior pituitary
- It stimulates smooth muscles of uterus to contract at the time of parturition. Hence it is called Birth hormone
- It also helps in expulsion of milk from mammary glands.

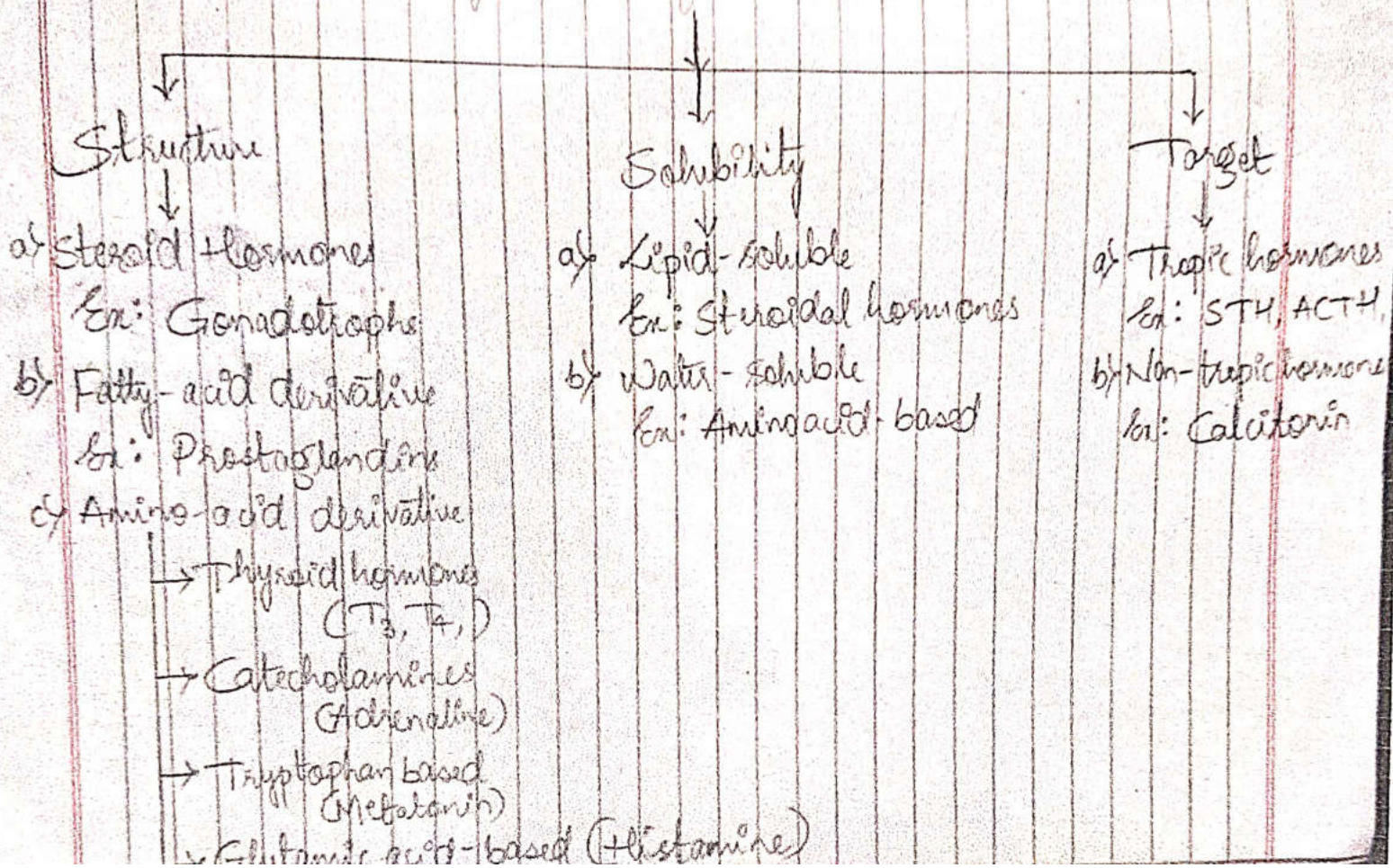
Human Insulin



Oxytocin Hormone



Classification of Hormones



Webinar Report

The webinar was held on the topic 'Hormones'.

Starting from the introduction; classification of hormones (based on structure, solubility and target); synthesis and importance of adrenaline and thyroxine; biological importance of insulin and oxytocin were discussed.

Hormones are the non-nutritive chemical substances, produced in trace amounts which act as the intercellular messengers.

They are chemically proteins, amino acids or steroids.

Hormones are directly released into the blood stream which carry to different parts of body.

They are produced by endocrine glands.

Questionaire

1) How is adrenaline synthesised chemically?
→ Catechol reacts with chloroacetic acid in presence of phosphorous oxy chloride to form 3,4-dihydroxy phenylchloride. This on treatment with methylamine followed by reduction forms (+) Adrenaline.

2) How is thyroxine synthesised chemically?
→ Thyroxine is chemically prepared by Heme's synthesis process.

3) what is BMR?

→ BMR (Basal Metabolic Rate) refers to the number of calories required to keep body functioning at rest.

4) which hormone is known as the Calorigenic hormone?

→ Thyroxine.

5) where is insulin hormone synthesised?

→ β -cells of islets of Langerhans.

Acknowledgements

Firstly, I would like to thank the Department of Chemistry for giving a chance to deliver an online seminar.

I would also thank Head of the Department, Dr. Ranaji Shirkargol Sir for his support and encouragement.

My sincere acknowledges to Dr. Swarooparani Madam for her guidance throughout the seminar.

Lastly, I also thank all the participants and making it successful.

Feedback of Webinar

The webinar was very interactive. This has helped me gain more knowledge and confidence over the concept.

The webinar was conducted by the department of chemistry to have an effective way of learning for students.

The live online seminar was an innovative way in the learning process and also develop skills