ESTIMATION OF INORGANIC PHOSPHATE IN MILK AND SOFT DRINK

OBJECTIVE

- Estimation of organic phosphate in milk and soft drink

PHOSPHATE IN FOOD

- Phosphate occurs naturally in the form of organic esters in many kinds of food, including meat, potatoes, bread, and milk.

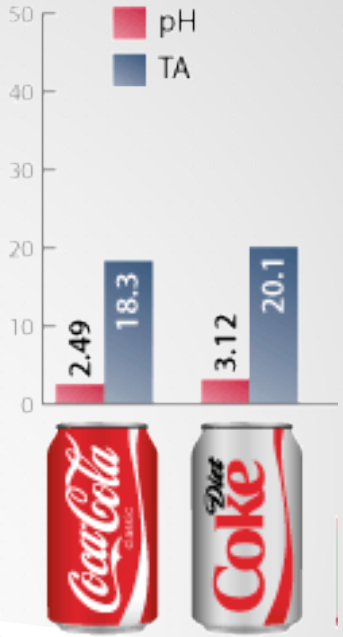
- Phosphate also used as a food additive (inorganic phosphate) as a preservative, a flavor or color enhancer, extend shelf life, and retain moisture..

- Soft drinks are complex mixtures containing a variety of substances such as colouring compounds, flavoring agents, acidifiers, sweeteners, preservatives, and caffeine.

- The most common acidifier used in soft drinks is phosphoric which gives a tangy taste in the mouth.

- Phosphoric acid can also acts as a preservative, keeping the contents of the bottle fresh.

- Due to the use of phosphoric acid, cola is a actually more acid than vinegar which no body can drink straight. But a ton of sugar, dyes and flavoring are added to mask the acidity.



PRINCIPLE:

- Phosphoric acid is colorless, they cannot be directly determined using visible-light spectrophotometry
- Instead,we will quantitatively convert them into a colored substance, whose absorbance can be easily measured

1. Inorganic phosphate reacts with ammonium molybdate in an acid solution to form phosphomolybdic acid
2. phosphomolybdic acid is then reduced by a reducing agent (3% ascorbic acid) to give molybdenum blue a green/ blue color but does not affect the un combined molybdic acid .

METHOD

	Standard	Milk sample	Soft drink sample	Ammonium molybdate	Ascorbic acid
Blank	----	---	----	0.5 ml	0.5 ml
S1	2	---	----		
S2	2	---	-----		
S3	2	---	---		
S4	2	---	---		
S5	2	---	---		
M1	---	2	---		
M2	---	2	---		
SD1	---	--	2		
SD2	---	--	2		

METHOD

- Mix throughly after each addition .
- Allow to stand for10 min
- (a deep blue/green colour should develop).
- Measure the absorbance at 650 nm.

- RESULTS AND CALCULATIONS:

- Plot a graph between absorbance and concentration of phosphate in various standard solutions and obtain the standard curve.
- From the curve determine the amount of phosphate in the test solution.