**Colorants:-**

* Annatto cheese color is added to some cheese to standardize seasonal changes in color or to create orange cheese such as Cheddar and Cheshire.

 The most important dyes for coloring chesses are derived from plants and vegetables and include yellow-orange annatto, carotene and paprika. Annatto is the most widely used color material for natural and process cheese.The fruit of the annatto tree (*Bixa orellana*), found in the tropics, is the source of annatto color for cheese and butter.Its active coloring agent is bixin which becomes norbixin when extracted with an alkline solution.

Amount of norbixin in annatto rang from 0.5-1.5 %.For use in cheese; annatto is extracted by an alkaline solution such as 0.1M NaOH. Commercial annatto solution is added in range 10-20ml \100kg milk depending on cheese type and should be diluted with water about five times before adding to cheese milk then stirred in well. The alkaline extracted form is water soluble and attaches to casein in cheese.

Annatto is also used for coloring butter, It is prepared by extraction with vegetable oil. This product, unlike the annatto for cheese ,is fat soluble.

Annatto intended for use in butter is not recommended in cheese as is it may not disperse well and the cheese surface may appear spotty.

 The following are some facts about annatto.

* Annatto is a carotenoid similar to -carotene and Vitamin A in structure, but it has no Vitamin A activity.
* About 10% of annatto goes into the whey.
* Annatto color is red to yellow pigment but it usually appears as orange. The red constituent is more apparent with decreasing pH (6-4.8) changing the orange to pink while at pH < 4.8 the pink becomes nearly white.
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