*Indian J. Anim. Prod. Mgmt. Vol. 30(3-4) 23-25 (2014)*

# PHYSIOCHEMICAL QUALITY OF RAW MILK SAMPLES IN ANDHRA PRADESH

**CHERRYL D. M[1] ; M. KALYANA CHAKRAVARTHI[2] ; Y. RAVINDRA REDDY[3] AND D. INDIRA[4]**
**Department of Livestock Production Management**
**College of Veterinary Science, Proddatur**

***Received : 28.06.2014*** ***Accepted : 09.10.2014***

**ABSTRACT**

One hundred raw milk samples were collected randomly from 4 different villages of Proddatur mandal of Kadapa District in Andhra Pradesh to determine the physio – chemical properties. The organoleptic quality was conducted by a panel of experts as per standard score card and the chemical constituents were determined by EKOMILK – Ultra PRO milk analyzer. The results revealed that the milk samples from Kamanur village were slightly higher in fat, protein and solids not fat contents when compared with the rest of the other three villages.

**Keywords :** Physiochemical, fat, protein, Solids-not- fat, milk analyzer

Milk should have normal composition, unadulterated and produced under hygienic conditions[2]. Although the physio-chemical properties of milk from various species differ widely due to several factors like breed, species, feed, source of milk collection, interval of milking, season etc, the milk constituents may very even between individuals of the same breed [6]. On an average, milk is made up of 87.4 % water, 12.6% milk solids (3.7% fat, 8.9% solids not fat[1]. The milk solids not fat contain protein (3.4%), lactose (4.8%) and minerals (0.7%). Milk fat often

called “butter fat” is commercially the most valuable constituent of milk. Milk fat & protein are of great importance from the standpoint of the food value of the milk. Hence, the aim of this study is to analyze the physio-chemical properties of fresh milk from different villages of Proddatur mandal of Kadapa district in Andhra Pradesh.

## MATERIALS AND METHODS

The study was conducted in the department of Livestock Production Management, College of Veterinary Science, Proddatur of Sri Venkateswara Veterinary University. The milk samples were collected from four different Villages (i.e.,Nanganurupally, Somulavaripally, Kamanur and Kallamalla of Proddatur mandal of Kadapa district of Andhra Pradesh). Twenty five individual samples of raw milk were randomly collected from each village and were analyzed in the laboratory for various physio-chemical tests.

Organoleptic test of milk was performed visually, nasally and with the help of a panel of experts to determine colour, flavour and texture. The organoleptic quality of each raw milk sample was evaluated by a panel of experts with the help of appearance, texture, small and taste characteristics as per standard score card[4]. The milk constituents (Fat, Protein, SNF) of the raw

[1]Assistant Professor,
Email. mirandadimphna@gmail.com
[2]Assistant Professor
[3]Professor & Head
[4] Assistant Professor

milk samples were determined by EKOMILK Ultrasonic milk analyzer.

Milk samples were mixed gently 4-5 times to avoid any air enclosure in the milk. About 25 ml sample was taken in the sample tube and put in the sample holder one at a time with the analyzer in the reset position. When the analyzer is put on, it sucks the milk, makes the measurements and returns the milk in the sample tube and the digital indicator displays the specified results. Specific gravity of the milk samples was also determined using lactometer.

## RESULTS AND DISCUSSION

Raw milk samples from four different villages of Proddatur mandal were collected to determine the physio-chemical properties. Perusal of Table 1 reveals that out of 100 samples analyzed, 45 samples were found white, 44 samples were found yellowish white, six samples were deep yellowish white and five samples were light yellowish white in colour. These findings were in agreement with the reports of [6] and [7] who reported that normal milk has a yellowish white colour due to the presence of fat, casein and the presence of small amount of colouring matter[5]. These differences in colour may be due to the differences in nature of feed consumption or the breed of cow or the fat and solid contents of the milk [3].

All the 100 milk samples had normal flavor. The texture of raw milk sample was examined before starting the experiment. The results indicated about 67 milk samples collected from four different villages of Proddatur mandal had normal texture. Thirty three milk samples had thin texture and this might be due to breed quality or percentage of water in milk.

The data on physio – chemical quantitative analysis for the raw milk was presented in Table 2. The highest fat content i.e. 6.55±0.26% was observed in the Kamanur village while the milk samples of Somulavaripally village was found to have the lowest content of Fat (4.04 ± 0.24%). With regard to protein content, Kamanur region was found to have higher levels (18.23± 0.34%) while the lowest protein content of 11.49 ± 0.49% was recorded in Somulavaripally.

The highest solid not fat content (8.45 ± 0.07%) was noticed in Kamanur area whereas the lowest SNF value (7.20 ± 0.16 %) was observed in Somulavaripally. The variations observed in different milk constituents may be attributed to breed, stage of lactation, parity and type of feed consumed by the animal.

The specific gravity of the investigated raw milk samples were 1.025, 1.023, 1.028 and 1.027 for Nanganurupally, Somulavaripally, Kamanur and Kallamalla villages, respectively.

**Table 1.Physical parameters of the raw milk samples collected from different villages of Proddatur mandal.**

| | Village names | | | |
|---|---|---|---|---|
| **Parameters** | **Nanganurupally** | **Somulavaripally** | **Kamanur** | **Kallamalla** |
| **Colour** | W- 48%<br>YW-48%<br>DYW-4% | W- 16%<br>YW-76%<br>DYW-8% | W-72%<br>YW-28% | W- 44%<br>YW-24%<br>DYW-12%<br>LYW-20% |
| **Flavour** | Normal 100% | Normal 100% | Normal 100% | Normal 100% |
| **Texture** | Normal – 60%<br>Thin – 40% | Normal – 60%<br>Thin – 40% | Normal – 88%<br>Thin – 12% | Normal – 60%<br>Thin – 40% |

Table 2 Chemical composition of the raw milk samples collected from different villages of Proddatur mandal.

| Parameters | Village names | | | |
|---|---|---|---|---|
| | Nanganurupally | Somulavaripally | Kamanur | Kallamalla |
| Fat (%) | 5.20 ± 0.34 | 4.04 ± 0.24 | 6.55 ± 0.26 | 5.095 ± 0.34 |
| SNF(%) | 7.47 ± 0.30 | 7.20 ± 0.16 | 8.45 ± 0.07 | 7.66 ± 0.24 |
| Protein (%) | 13.57 ± 0.73 | 11.49 ± 0.49 | 18.23 ± 0.34 | 13.83 ± 0.74 |
| Specific gravity | 1.025 ± 0.00 | 1.023 ± 0.00 | 1.028 ± 0.00 | 1.027 ± 0.00 |

## CONCLUSION

In the present study, preliminary investigations were carried out to ascertain the physiochemical characteristics of raw milk samples collected from different villages of Proddatur mandal of Kadapa district of Andhra Pradesh. The results revealed that the milk samples from Kamanur village were slightly higher in fat, protein and solids not fat contents when compared with the rest of the other three villages.

## REFERENCES


1. Ayub, M., Ahmad, G., Abbas, M., Qazi, I.M. and Khattek, I. A. 2007. Composition and adulteration analysis of milk samples. *Sarhad J. Agric.,* 23(4):1127.
2. Chamberlian, A.1990. An introduction to Animal Husbandry in the tropics. 4th Ed. John Wiley and Sons Inc. New York, 758.
3. Eckles, C.H., Combs, W.B. and Macy, H. 1951. Milk and milk products. 4th Ed. Mc. Graw Hill Book Company, New York, Toronto, London.
4. ISO, International Organization for Standardization. 1995. Recommendation of the meeting of the ISO of Meat and Meat products. ISO /TC-34/SC. 6. The Netherland.
5. Judkins, H. F. and Mack, M. J. 1955.The principle of Dairying. 3rd Rev Ed. John Wiley and Sons, Inc. New York, 31.
6. Khan, M. T. G., Zinnah,.M. A., Siddique, M. P., Rashid, M. H. A., Isalom, M. A. and Choudhury, K. A. 2008. Physical and microbial quality of raw milk collected from Bangaladesh Agricultural University dairy farm and the surrounding villages. *Bangl.J.Vet. Med* 6 (2): 217.
7. Marimuthu, M., Sankar, N., Sathish, A., Vivek, S. and MohanRaj, N. 2013. Comparative study on physiochemical quality of raw milk samples collected from different villages of Karur District. *International Journal of Pharmaceutical, Chemical and Biological science*. 3(3):635.


★ ★ ★