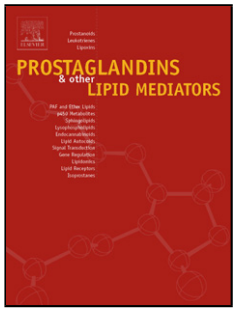
Accepted Manuscript



Title: Effect of dietary n-3 polyunsaturated fatty acid rich fish oil on the endometrial prostaglandin production in the doe (*Capra hircus*)

Authors: Ravjibhai K. Chaudhari, Ajit Singh Mahla, Amit Kumar Singh, Sanjay Kumar Singh, Abhijit M. Pawde, G.V.P.P.S. Ravi Kumar, GyanendraSingh, Mihir Sarkar, Harendra Kumar, Krishnaswamy Narayanan

PII: S1098-8823(17)30086-2
DOI: https://doi.org/10.1016/j.prostaglandins.2018.02.001
Reference: PRO 6270

To appear in: *Prostaglandins and Other Lipid Mediators*

Received date: 1-7-2017
Revised date: 24-1-2018
Accepted date: 5-2-2018

Please cite this article as: Chaudhari Ravjibhai K, Mahla Ajit Singh, Singh Amit Kumar, Singh Sanjay Kumar, Pawde Abhijit M, Kumar GVPPS Ravi, GyanendraSingh , Sarkar Mihir, Kumar Harendra, Narayanan Krishnaswamy.Effect of dietary n-3 polyunsaturated fatty acid rich fish oil on the endometrial prostaglandin production in the doe (Capra hircus).*Prostaglandins and Other Lipid Mediators* https://doi.org/10.1016/j.prostaglandins.2018.02.001

Effect of dietary n-3 polyunsaturated fatty acid rich fish oil on the endometrial prostaglandin production in the doe (*Capra hircus*)

Ravjibhai K Chaudhari[a], Ajit Singh Mahla[a], Amit Kumar Singh[a], Sanjay Kumar Singh[a], Abhijit M Pawde[b], GVPPS Ravi Kumar[c], GyanendraSingh[d], Mihir Sarkar[d], Harendra Kumar[a], Krishnaswamy Narayanan*[a]

[a]*Division of Animal Reproduction, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly (U.P.), INDIA*

[b]*Division of Veterinary surgery,ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly (U.P.), INDIA*

[c]*Division of Animal Biotechnology,ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly (U.P.), INDIA*

[d]*Division of Physiology and Climatology, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly (U.P.), INDIA*

[*]*Corresponding author: K. Narayanan; Email: vetnanny@gmail.com*

Highlights

- Fish oil rich in EPA and DHA was supplemented *per oral* for 8 weeks in the doe.
- Endometrium was collected by laparohysterotomy on day 16 post-estrus.
- Endometrial explant culture was done to study PG synthesis.
- Fish oil inhibited basal and OXT and/or roIFNτ induced production of $PGF_{2\alpha}$ and PGE_2.
- Downregulation of COX-2 transcripts was the reason behind decreased PG production.

Abstract

Recently, we showed that dietary supplementation of n-3 PUFA rich fish oil (FO) decreased the metabolites of serum prostaglandin (PG) $F_{2\alpha}$ and E_2 during the window of pregnancy recognition in the doe. In this study, we investigated its effect on the changes on endometrial PG production *in vitro*. Cycling does (n=12) of Rohilkhand region were divided into two equal groups and fed a concentrate diet supplemented with either FO containing 26% n-3 PUFA (TRT; n=6) or palm oil (CON; n=6) @