

- serovariedad Enteritidis. *Rev. Arg. Microbiol.* 30, 84-92.
- Terzolo, H. R., Argento, E., Catena, M. C. et al. (1992). Procedimientos de laboratorio para el diagnóstico de la campylobacteriosis y tricomoniasis genital bovina. In *Documento de la Comisión Científica permanente de Enfermedades Venéreas de los bovinos* (1-33). Balcarce, Argentina: CERBAS-INTA Press.
- Villar, J. A. y Spina, M. E. (1982). Campylobacteriosis (Vibriosis) bovina. Una recopilación de datos sobre su incidencia en el período 1966-1981. *Gac. Vet.* 372, 647-658.
- Winter, A. J., Mc Coy, E. C., Fullmer, C. S. et al. (1978). Microcapsule of *Campylobacter fetus*: chemical and physical characterization. *Infect. Immun.* 22, 963-971.
- Yokoyama, H., Peralta, R., Díaz, R. et al. (1992). Passive protective effect of chicken egg yolk immunoglobulins against experimental enterotoxigenic *Escherichia coli* infection in neonatal piglets. *Infect. Immun.* 60, 998-1007.

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Poster

Im Heft 1/2001 fehlte bei der Berichterstattung über Linz 2000 leider dieses Poster. ALTEX bittet um Entschuldigung.

Evaluation of Nutrition Media Derived from Human Blood Transfusion Units DFP, EC and BC for the *in vitro* Feeding of *pediculus humanus corporis* (*Anoplura: Pediculidae*)

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The laboratory rearing of the human body louse *Pediculus (P.) humanus corporis*, main vector of *Rickettsia prowazekii*, *Borrelia recurrentis* and *Bartonella quintana*, is unalterably required for efficacy tests of pediculicids. Beside the practised for decades feeding procedure of the body lice on arms of volunteers, Culpepper succeeded for the first time in 1948 in breeding these obligate haematophagous and stenoxene human parasites exclusively by blood feeding on rabbits. Until now, rabbits are used as substitute hosts for the laboratory rearing of *P. humanus corporis*. However, the performance of feeding lice on rabbits repeatedly gave occasion for criticism from point of animal welfare. Hence, there is a demand

for the development and evaluation of alternative methods for continuous laboratory rearing and mass breeding of the human body louse.

Experimental investigations on the *in vitro* feeding of *P. humanus corporis* of a rabbit-adapted laboratory strain showed that this Anoplura species are able regularly to feed on heparinised and stored at 4°C fresh blood of volunteers, as well as on whole blood resuspended from human blood transfusion units (superimposed CPD-SAGM-stabilised erythrocyte concentrate unit - EC, superimposed deep frozen Aphaeresis-fresh plasma unit - DFP and a buffy coat unit - BC) that were offered through a Parafilm M® membrane (American National Can, Chicago). Thus,

the body lice were kept in laboratory over 9 generations by continued *in vitro* feeding with blood stored until use at -27°C. However, a developmental deceleration of 1 to 2 days from the first feeding of first stage larvae until their moult into imagines of *in vitro* fed lice compared to rabbit fed lice was observed. Screenings of 13 nutrition media (storage 4°C vs. -27°C) derived from EC, DFP and BC and of 5 nutrition media extracted from BC in continued up to 30 days feeding experiments indicated that superimposed media from BC: GFP in ratios of 2:3, 1:1 und 3:2 are proper for long time feedings. After the use of BC-derived nutrition media *P. humanus corporis* showed the same developmental time from first blood uptake of first stage larvae to their moult into imagines as lice fed on the rabbits. This study demonstrates that *P. humanus corporis* can be reared by membrane feeding technique. The *in vitro* feeding of human lice offers the possibility of breeding these pediculids in consideration to animal welfare for studies on lice control and efficacy tests of insecticides as well as for molecular biological and physiological studies. On the other hand this *in vitro* method enables to offer the lice defined and standardised nutrition media for advanced studies.