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## Relationships between seminal plasma composition and sperm quality parameters of the *Salmo trutta macrostigma* (Dumeril, 1858) semen: with emphasis on sperm motility

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<https://doi.org/10.17221/2394-CJAS>

Citation: Bozkurt Y., Öğretmen F., Kökçü Ö., Erçin U. (2011): Relationships between seminal plasma composition and sperm quality parameters of the *Salmo trutta macrostigma* (Dumeril, 1858) semen: with emphasis on sperm motility. Czech J. Anim. Sci., 56: 355-364.

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The mineral and organic composition of seminal plasma, physical spermatological parameters and their physiological relationships were investigated in *Salmo trutta macrostigma*. The seminal plasma contained  $121.0 \pm 0.37$  mM/l ( $\text{Na}^+$ ),  $8.18 \pm 0.03$  mM/l ( $\text{K}^+$ ),  $7.23 \pm 0.03$  mg/dl ( $\text{Ca}^{2+}$ ),  $3.19 \pm 0.02$  mEq/l ( $\text{Mg}^{++}$ ),  $0.48 \pm 0.02$  g/dl total protein,  $6.07 \pm 0.06$  mg/dl cholesterol,  $6.24 \pm 0.08$  mg/dl triglyceride and  $9.97 \pm 0.39$  mg/dl urea. The following physical spermatological parameters were found out: sperm volume  $13.93 \pm 0.84$  ml, sperm motility  $80.37 \pm 2.36\%$ , movement duration  $81.47 \pm 4.21$  s, density  $6.02 \pm 0.46 \times 10^9$ /ml, total density  $8.85 \pm 6.12 \times 10^9$  and pH  $7.53 \pm 0.20$ . Significant positive relationships were determined between motility duration and motility ( $r = 0.83$ ,  $P < 0.01$ ) and also between spermatocrit and motility ( $r = 0.536$ ,  $P < 0.05$ ). Sperm volume and total density negatively correlated with motility ( $r = -0.191$ ,  $P > 0.05$  and  $r = -0.087$ ,  $P > 0.05$ , respectively). The  $\text{Na}^+$ ,  $\text{K}^+$  and  $\text{Cl}^-$  ions correlated negatively with motility ( $r = -0.267$ ,  $P > 0.05$ ,  $r = -0.152$ ,  $P > 0.05$  and  $r = -0.461$ ,  $P > 0.05$ , respectively). On the other hand, the  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  ions correlated positively with motility ( $r = 0.114$ ,  $P > 0.05$  and  $r = 0.040$ ,  $P > 0.05$ , respectively). A significant negative relationship was found between motility and urea ( $r = -0.515$ ,  $P < 0.05$ ). These parameters should be considered when developing procedures for short-term storage or cryopreservation of the *Salmo trutta macrostigma* sperm.

**Keywords:**
 spermatological parameters; spermatozoa; seminal fluid; *Salmo trutta macrostigma*
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2017: **0.955**
 5-Year Impact Factor: **1.06**  
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