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Flavobacterium psychrophilum, the causative agent of RTFS or rainbow trout fry syndrome, causes high mortality among hatchery reared rainbow trout (Oncorhynchus mykiss) fry in Europe and the USA. Despite several attempts, no efficient vaccines have yet been developed, the main obstacle being that the fry have to be vaccinated very early, i.e. around 0.2–0.5 g, where RTFS usually starts to give problems in the fish farms. Consequently, only oral or bath vaccines are relevant. Immersion of fry in inactivated or attenuated bacteria has resulted in RPS values of less than 50%. However, the results are biased by the fact that the fish have been challenged by intraperitoneal (ip) or subcutaneous (sc) injection against which an immersion/oral vaccine may not protect. Therefore, the present study was undertaken in order to investigate whether the presumably most potent immersion immunization, i.e. bathing in high titres of non-attenuated isolates of F. psychrophilum, was able to induce immunity to a subsequent ip challenge. Immersion in live bacteria for 30 or 50 min caused no mortality and protected a major fraction of the fry against challenges 26 and 47 days later with RPS values of 88.2 and 60.3%, respectively. Increased specific antibody titres suggested that adaptive immune mechanisms were involved in the protection.

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