Why do females in many species prefer some exaggerated male traits, e.g. long tails, colourful feathers or spots? Decades of studies in the field of sexual selection brought various hypotheses trying to explain why both the mating preferences and the ornaments themselves are maintained in populations. Much less attention has been paid to another intriguing question, that is, how such preferences can arise in the first place. One of the hypotheses trying to answer the question is the sensory exploitation hypothesis, according to which the first step is that females evolve a preference for some traits of objects important for their survival and condition. As an example, guppies, small tropical fish living in the streams of South America, pay special attention to orange fruits which they find fallen into water, because of their high nutritious value. Sensory exploitation hypothesis suggests that orange spots which are characteristic ornaments of male guppies, evolved later, by the means of males' exploitation of this females' special sensitivity towards the colour of these fruits, i.e. orange. While there is data showing that guppies of both sexes are indeed more attracted to orange objects than to objects of other colours, no direct proof has been yet presented as to the possibility of transferring a preference that arose in ecological context into the mating context. In my project I plan to explore this possibility. I will train guppy females to associate food with one colour – it will be orange in one group and black in the other. Once the females learn that food comes with a given colour, I will check their preferences towards mating partners with spots of black and orange colour (the colour of the spots will be manipulated on a computer model male). If a learned preference for a colour in ecological context can be translated into the mating context, I expect females trained on either colour to prefer males with ornaments of the same colour. I will also check if males of the colour for which the females will be trained will get more offspring from them than the males of the other colour.