PROBIOTIC IMPACT ON GLICLAZIDE PERMEABILITY

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Background

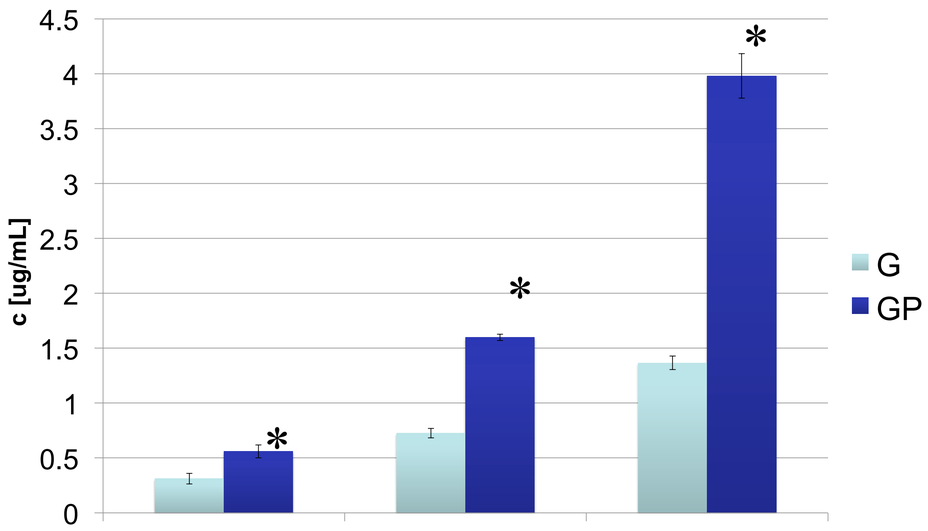
Interindividual differences in drug response sometimes occur due to the impact of intestinal environment on drugs, particularly due to effects of gut microflora.
Given that gliclazide is a drug wide interindividual variation in oral bioavailability, the aim of this study was to determine the effects of probiotic bacteria on its permeability.

Methods

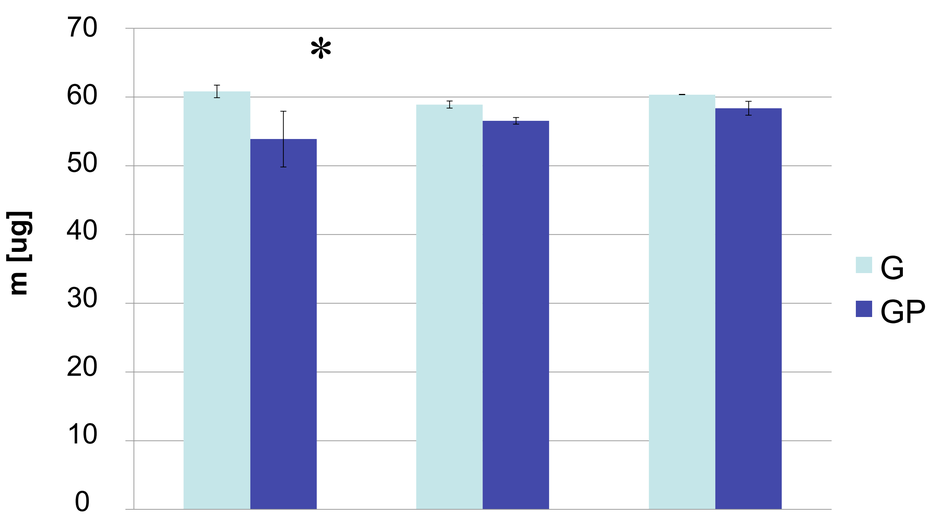
The permeability of gliclazide with and without probiotic bacteria was tested using in vitro PAMPA model at pH 7.4, 6.5. and 5.8 for 6h. In order to study potential accumulation of gliclazide in probiotic bacteria or biotransformation, the total mass was calculated as a sum of mass in acceptor and donor compartment.
Concentrations of gliclazide were determined by HPLC analysis at 229 m.

Results

Concentrations of gliclazide in the acceptor compartment after 2h, 4h and 6h at pH 7.4. Data are presented as the mean ± SD; n=3 in each group (*p<0.05 compared to G)

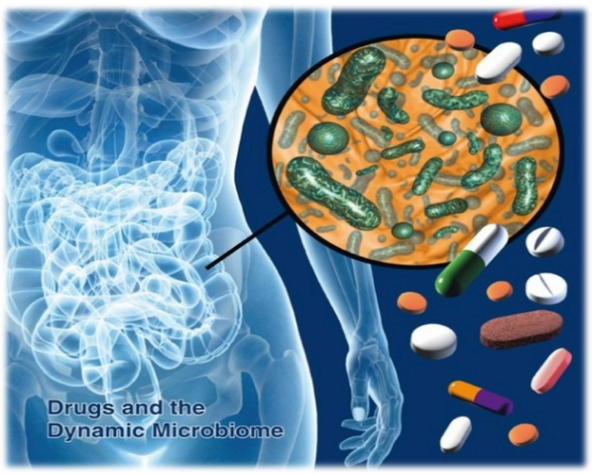


The total mass of gliclazide calculated as the sum of gliclazide mass in the donor and acceptor compartments after 6h of incubation



The permeability of gliclazide after 6h incubation at room temperature at pH 7.4, 6.5, 5.8, respectively. Data are presented as the mean ± SD; n = 3 in each experimental group.

	Permeability [P_{app} x 10^{-6}] [cm/s]		
	pH 7.4	pH 6.5	pH 5.8
G	1,34±0,04	4,78±0,12	13,21±0,34
GP	4,77±0,67	8,09±0,2	12,65±1,09



Conclusions

Probiotic bacteria, naturally present as part of gut microflora and also in the form of supplement, increase the permeability of gliclazide that may affect its absorption and bioavailability. The effect of these interactions on the final therapeutic response of gliclazide should be further studied and confirmed in *in vivo* conditions.

Acknowledgement: This research was supported by HORIZON 2020 MEDLEM project no. 690876, Project for Scientific and Technological Development of Vojvodina no. 114-451-2072-/2016-02 and Project of Ministry of Education, Science and Technological Development of the Republic of Serbia, grant no. 41012