Hemp peptides (*Cannabis sativa* L.) modulate the neuro-inflammatory process via inflammasome

Millán-Linares, Maria Carmen (1); **Rodríguez-Martín**, Noelia (1); **Villanueva**, Álvaro (1); **Pedroche**, Justo (1); **Millán**, Francisco (1); **Montserrat-de la Paz**, Sergio (2); **Carrillo-Berdasco**, Gabriela (1,*)

(1)Grupo de Proteínas Vegetales. Instituto de la Grasa, CSIC. Ctra. de Utrera km 1, 41013 Sevilla, España.
(2)Departamento de Bioquímica Médica y Biología Molecular e Inmunología. Universidad de Sevilla, Av. Dr. Fedriani, 41071, Sevilla, España.

INTRODUCTION

Plant proteins have generated great interest in recent years as a potential source of peptides with biological activity (1). In this sense, extensive protein hydrolysates with high degree of hydrolysis obtained by enzymatic hydrolysis are used in specialized food to prevent or treat chronic diseases (2,3).

OBJECTIVES

The main objective of the present study was to investigate the neuro-inflammatory effects of hemp protein hydrolysate on BV-2 microglial cells.

MATERIALS AND METHODS

From hemp seeds, a protein isolate was obtained and subsequently hydrolyzed with Alcalase and Flavourzyme enzymes. Two hemp protein hydrolysates (HP20A, HP60A+15AF) were characterized and used in BV2 microglial cells previously stimulated with lipopolysaccharide (LPS), in order to evaluate their anti-inflammatory activity.

CONCLUSION

Both HP20A and HP60A+15AF protein hydrolysates showed a potential neuroprotective effect via inflammasome by suppressing gene expression of IL-18 and IL-1β pro-inflammatory cytokines.

NEURO-INFLAMMATORY EFFECTS

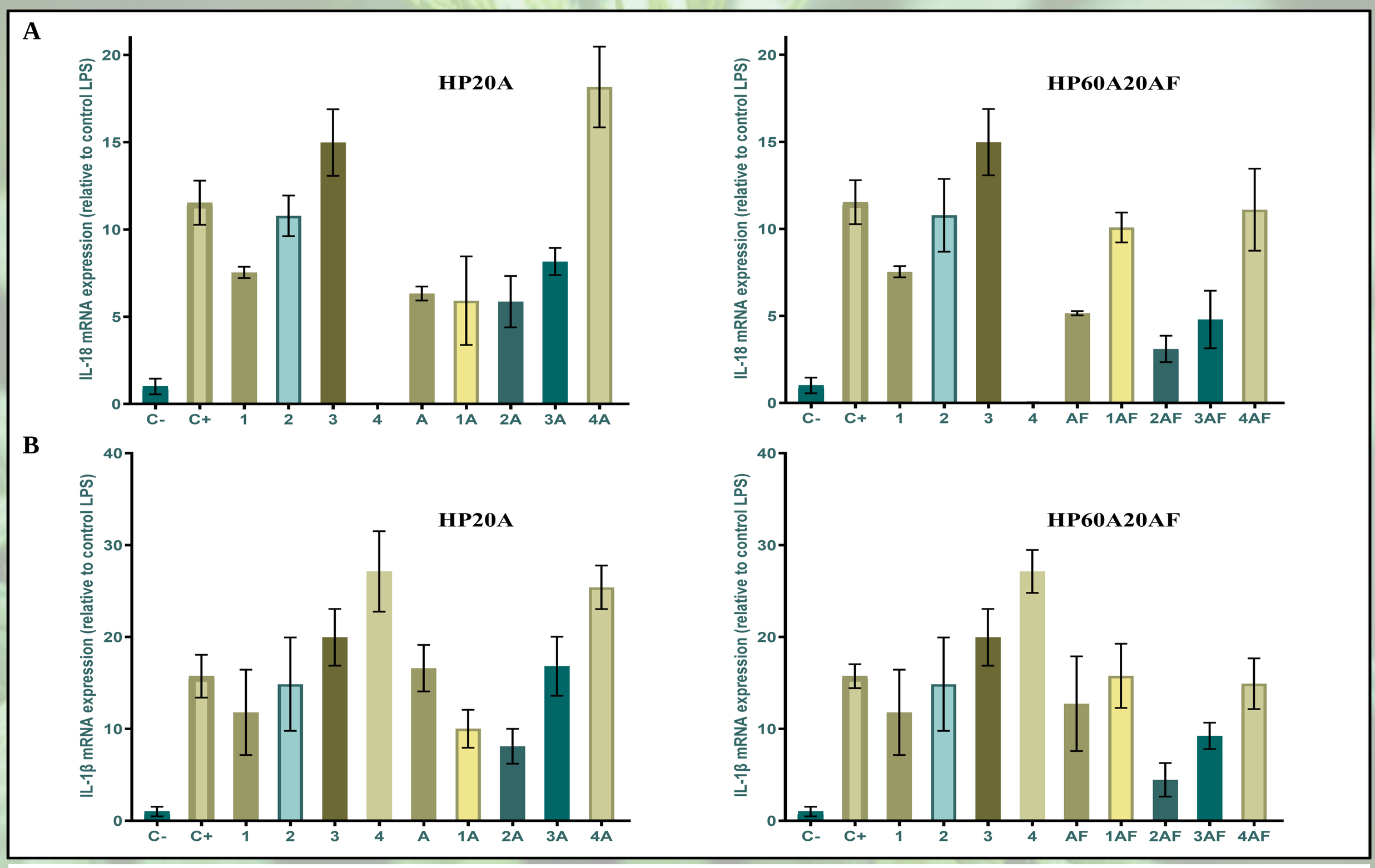

Figure 1. Effects of HPHS on IL-1β and IL-18 mRNA levels in LPS-stimulated BV2 cells. For qRT-PCR analysis, the mRNA levels of IL-18 (A) and IL-1β (B) were determined after incubation with LPS, A-HP and AF-HP at dose of 100 μg/mL for 24 h. Data are presented as mean ± SD from at least three independent experiments. **Abbreviations**: 1: MCC950 + LPS, 2: H89 + LPS; 3: PICEATANNOL + LPS; 4: RAPAMYCIN + LPS; A: HP20A; 1A: MCC950 + LPS + HP20A; 2A: H89 + LPS + HP20A; 3A: PICEATANNOL+ LPS + HP20A; 4A: RAPAMYCIN + LPS+ HP20A; AF: HP60A15AF; 1AF: MCC950 + LPS + HP60A15AF; 2AF: H89 + LPS + HP60A15AF; 3AF: PICEATANNOL + LPLS + HP60A15AF; 4AF: RAPAMYCIN + LPS + HP60A15AF.

REFERENCES

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