

## Jatropha related publications

### Peer-reviewed publications

#### 2013

**Becker, K., Wulfmeyer, V., Berger, T., Gebel, J., Münch, W.** (2013). Carbon farming in hot, dry coastal areas: An option for climate change mitigation. *Earth System Dyn.*, in press.

**Devappa, R.K., Bingham, J.-P., Khanal, K.S.** (2013): High performance liquid chromatography method for rapid quantification of phorbol esters in *Jatropha curcas* seed. *Industrial Crops and Products* 49, 211-219.

**Devappa, R.K., Makkar H.P.S., Becker K.** (2013). *In vitro* ocular and dermal toxicity of *Jatropha curcas* phorbol esters. *Ecotoxicology and Environmental Safety*, Volume 94, 1 August 2013, pp. 172–178.

**Devappa, R.K., Makkar H.P.S., Becker K.** (2013). Shelf-life of isolated phorbol esters from *Jatropha curcas* oil. *Industrial Crops and Products* 49, 454-461.

**Devappa, R.K., Rajesh, S.K., Makkar H.P.S., Becker K.** (2013). Antioxidant and antimicrobial potential of *Jatropha curcas* seed hulls. *Ind. Crops and Products* (accepted).

**Francis, G., Oliver, J., Sujatha, M.** (2013). Non-toxic jatropha plants as a potential multipurpose multi-use oilseed crop. *Industrial Crops and Products* 42, 397–401.

**Kumar, V., Khalil, W.K.B., Weiler, U., Becker K.** (2013). Influences of incorporating detoxified *Jatropha curcas* kernel meal in common carp (*Cyprinus carpio* L.) diet on the expression of growth hormone- and insulin-like growth factor-1-encoding genes. *Journal of Animal Physiology and Animal Nutrition*, 97(1), pp. 97–108.

**Latif, S., Pfannstiel, J., Makkar, H.P.S., Becker K.** (2013). Amino acid composition, antinutrients and allergens in the peanut protein fraction obtained by an aqueous enzymatic process. *Food Chem.* 136, 213-217.

**Montes, J.M., Technow, F., Bohlinger, B., Becker K.** (2013). Grain quality determination by means of near infrared spectroscopy in *Jatropha curcas* L. *Industrial Crops and Products*, Volume 43, May 2013, Pages 301-305.

**Nithiyantham, S., Siddhuraju, P., Francis, G.** (2013). A promising approach to enhance the total phenolic content and antioxidant activity of raw and processed *Jatropha curcas* L. kernel meal extracts. *Industrial Crops and Products*, 43, 261-269.

**Sujatha, M., Tarakeswari, M., Francis, G.** (2013). Start codon targeted (SCoT) polymorphism in toxic and non-toxic accessions of *Jatropha curcas* L and development of a codominant SCAR marker. *Plant Science*, <http://dx.doi.org/10.1016/j.plantsci.2013.02.013>

## 2012

**Akinleye, A.O., Kumar, V., Makkar, H.P.S., Angulo-Escalante, M.A., Becker, K.** (2012). *Jatropha platyphylla* kernel meal as feed ingredient for Nile tilapia (*Oreochromis niloticus* L.): Growth, nutrient utilization and blood parameters. *Journal of Animal Physiology and Animal Nutrition*, 96 (1), pp. 119-129.

**Devappa, R.K., Makkar H.P.S., Becker K.** (2012). Localisation of antinutrients and qualitative identification of toxic components in *Jatropha curcas* seed. *J Sci Food Agric*. 2012 May, 92(7), pp. 1519-25.

**Devappa, R.K., Angulo-Escalante, M.A., Makkar H.P.S., Becker K.** (2012). Potential of using phorbol esters as an insecticide against *Spodoptera frugiperda*. *Industrial Crops and Products*, 38 (July 2012), pp. 50–53.

**Devappa, R.K., Sanjay, K.R., Kumar, V., Makkar H.P.S., Becker K.** (2012). Activities of *Jatropha curcas* phorbol esters in various bioassays. *Ecotoxicology and Environmental Safety*, 2012 Apr, 78, pp. 57-62.

**Devappa, R.K., Makkar H.P.S., Becker K.** (2012). Isolation, stability and bioactivity of *Jatropha curcas* phorbol esters. *Fitoterapia*. 2012 Apr, 83(3), pp. 586-92.

**Devappa, R.K., Malakar, C.C., Makkar H.P.S., Becker K.** (2012). Pharmaceutical potential of phorbol esters from *Jatropha curcas* oil. *Nat. Prod. Res.* 2012 Aug 22, DOI:10.1080/14786419.2012.716057.

**Francis, G.** (2012). *Jatropha* Seeds Oil and Products: Important Properties with Respect to Uses. In: M. Sujatha, B. Bahadur, N. Carels (eds), *Jatropha curcas*, Scientific Publishers (USA), *Jatropha*, Challenges for a New Energy Crop 2012, pp 343-354.

**Kumar, V., Akinleye, A.O., Makkar H.P.S., Angulo-Escalante, M.A., Becker K.** (2012). Growth performance and metabolic efficiency in Nile tilapia (*Oreochromis niloticus* L.) fed on a diet containing *Jatropha platyphylla* kernel meal as a protein source. *J Anim Physiol Anim Nutr (Berl)*. 2012 Feb; 96(1), pp. 37-46.

**Kumar, V., Makkar, H.P.S., Becker, K.** (2012). Evaluations of the nutritional value of *Jatropha curcas* protein isolate in common carp (*Cyprinus carpio* L.). *Journal of Animal Physiology and Animal Nutrition*, 96 (6), pp. 1030-1043.

**Martinez-Herrera, J., Martinez, C.J., Ayaly, A.M., Siciliano, L.G., Escobedo, R.M., Davila-Ortiz, G., Cevallos, G.C., Makkar, H.P.S., Francis, G., Becker, K.** (2012). Evaluation of the nutritional quality of non-toxic kernel flour from *Jatropha curcas* L. in rats. *Journal of Food Quality* 35, (2) 152–158.

**Nithiyantham, S., Siddhuraju, P., Francis, G.** (2012). Potential of *Jatropha curcas* as a biofuel, animal feed and health products. *Journal of the American Oil Chemists' Society*, 89, 961-972.

## 2011

**Harter, T., Buhrke, F., Kumar, V., Focken, U., Makkar H.P.S., Becker K.** (2011). Substitution of fish meal by *Jatropha curcas* kernel meal: Effects on growth performance and body composition of white leg shrimp (*Litopenaeus vannamei*). *Aquaculture Nutrition*, 17 (5), pp. 542–548.

**Kumar, V., Makkar H.P.S., Becker K.** (2011). Detoxified *Jatropha curcas* kernel meal as a dietary protein source: growth performance, nutrient utilization and digestive enzymes in common carp (*Cyprinus carpio* L.) fingerlings. *Aquaculture Nutrition*, 17 (3), pp. 313–326.

**Kumar, V., Makkar H.P.S., Becker K.** (2011). Nutritional, physiological and haematological responses in rainbow trout (*Oncorhynchus mykiss*) juveniles fed detoxified *Jatropha curcas* kernel meal. *Aquaculture Nutrition*, Volume 17, Issue 4, pages 451–467.

**Kumar, V., Makkar, H.P.S., Devappa, R.K., Becker, K.** (2011). Isolation of phytate from *Jatropha curcas* kernel meal and effects of isolated phytate on growth, digestive physiology and metabolic changes in Nile tilapia (*Oreochromis niloticus* L.). *Food and Chemical Toxicology*, 49 (9), pp. 2144-2156.

**Makkar H.P.S., Kumar, V., Oyeleye, O.O., Akinleye, A.O., Angulo-Escalante, M.A., Becker K.** (2011). *Jatropha platyphylla*, a new non-toxic *Jatropha* species: Physical properties and chemical constituents including toxic and antinutritional factors of seeds. *Food Chemistry*, 125 (1), 1 March 2011, pp. 63–71.

## 2010

**Devappa, R.K., Makkar, H.P.S., Becker, K.** (2010). *Jatropha* toxicity - A Review. *Journal of Toxicology and Environmental Health, Part B Crit Rev*, 13, pp. 476-507.

**Devappa, R.K., Makkar H.P.S., Becker K.** (2010). Nutritional, Biochemical and Pharmaceutical potential of Proteins and Peptides from *Jatropha*: Review. *Journal of Agricultural and Food Chemistry*, 58, pp. 6543-6555.

**Devappa, R.K., Makkar, H.P.S., Becker, K.** (2010). *Jatropha* Diterpenes - A Review. *J. Am oil chem.*, 88, pp. 301-322.

**Devappa, R.K., Maes, J., Makkar H.P.S., De Greyt, W., Becker K.** (2010). Quality of Biodiesel Prepared from Phorbol Ester Extracted *Jatropha curcas* Oil. *Journal of the American Oil Chemists' Society*, 87 (6), pp 697-704.

**Devappa, R.K., Makkar H.P.S., Becker K.** (2010). Optimization of conditions for the extraction of phorbol esters from *Jatropha* oil. *Biomass and Bioenergy*, 34 (8), pp. 1125–1133.

**Devappa, R.K., Makkar H.P.S., Becker K.** (2010). Biodegradation of *Jatropha curcas* phorbol esters in soil. *J Sci Food Agric*. 90 (12), pp. 2090-2097.

**Kumar, V., Makkar H.P.S., Becker K.** (2010). Dietary inclusion of detoxified *Jatropha curcas* kernel meal: effects on growth performance and metabolic efficiency in common carp, *Cyprinus carpio* L.. *Fish Physiol Biochem*. 2010 Dec; 36(4):1159-70.

**Kumar, V., Makkar H.P.S., Amselgruber, W., Becker K.** (2010). Physiological, haematological and histopathological responses in common carp (*Cyprinus carpio* L.) fingerlings fed with differently detoxified *Jatropha curcas* kernel meal. *Food and Chemical Toxicology*, Volume 48, Issues 8–9, August–September 2010, Pages 2063–2072.

**Li, C.Y., Devappa, R.K., Liu, J.X., Makkar H.P.S., Becker K.** (2010). Toxicity of *Jatropha curcas* phorbol esters in mice. *Food and Chemical Toxicology*, 48 (2), pp. 620-625.

**Makkar H.P.S., Kumar, V., Oyeleye, O.O., Akinleye, A.O., Angulo-Escalante, M.A., Becker K.** (2010). Traditional wisdom confirmed by scientific research: *Jatropha* species from Mexico is non-toxic. *Nature Proceedings*, posted January 13, 2010, 1-21.

**Makkar H.P.S., Becker K.** (2010). Are *Jatropha curcas* phorbol esters degraded by rumen microbes? *Journal of the Science of Food and Agriculture*, 90, 1562-1565.

**Martinez-Herrera, J., Martinez-Ayalla, A.L., Makkar, H.P.S., Francis, G., Becker K.** (2010). Agroclimatic conditions, chemical and nutritional characterization of different provenances of *Jatropha curcas* L. from Mexico. *European Journal of Scientific Research*, 39, 396-407.

## 2009

**Basha, S.D., Francis, G., Makkar, H.P.S., Becker, K., Sujatha, M.** (2009). A comparative study of biochemical traits and molecular markers for assessment of genetic relationships between *Jatropha curcas* L. germplasm from different countries. *Plant Sci.* 176, 812-823.

**Makkar, H.P.S., Becker, K.,** (2009). *Jatropha curcas*, a promising crop for the generation of biodiesel and value-added coproducts. *European Journal of Lipid Science and Technology*, 111, 773-787.

**Makkar, H.P.S., Becker, K.,** (2009). *Jatropha curcas* an exciting future crop for generation of biofuel and value-added products with a focus on comparison between toxic and non-toxic genotypes. *European Journal of Lipid Science and Technology*, 111, 773-787.

**Makkar, H.P.S., Becker, K.,** (2009). Removal and degradation of phorbol esters during pre-treatment and transesterification of *Jatropha curcas* oil. *Journal of the American Oil Chemists*, 86, 173-181.

**Ye Meng, Li Caiyan., Francis, G. Makkar, H.P.S.** (2009). Current situation and prospects of *Jatropha curcas* as a multipurpose tree in China. *Agroforestry Systems* 76, 2, 487-497.

## 2008

**Kumar, V., Makkar, H.P.S., Becker, K.** (2008). Detoxification of *Jatropha curcas* seed meal and its utilization as a protein source in fish diet. *Comparative Biochemistry and Physiology* 151 A(1), 13-14.

**Makkar, H.P.S., Becker, K.** (2008). *Jatropha curcas*: A potential source for tomorrow's oil and biodiesel. *Lipid Technology*, 20, 104-107.

**Makkar, H.P.S., Francis, G., Becker, K.** (2008). Protein concentrate from *Jatropha curcas* screw-pressed seed cake and toxic and antinutritional factors in protein concentrate. *Journal of the Science of Food and Agriculture*, 88, 1542-1548.

**Makkar, H.P.S., Martinez-Herrera, J., Becker, K.** (2008). Variations in seed number per fruit, seed physical parameters and contents of oil, protein and phorbol ester in toxic and non-toxic genotypes of *Jatropha curcas*. *Journal of Plant Science*, 3, 260-265.

## **2007**

**Goel, G., Makkar, H.P.S., Francis, G., Becker, K.** (2007). Phorbol esters: Structure, biological activity and toxicity in animals. *International Journal of Toxicology*, 26, 279-288.

**Makkar, H.P.S., Francis, G., Becker, K.** (2007). Bioactivity of phytochemicals in some lesser-known plants and their effects and potential applications in livestock and aquaculture production systems. *Animal*, 1, 1371-1391.

**Selje, N., Hoffmann, E.M., Muetzel, S., Ningart, R., Wallace, J., Becker, K.** (2007). Results of a screening programme to identify plants or plant extracts that inhibit ruminal protein degradation. *British Journal of Nutrition*, 98, 45-53.

## **2006**

**Francis, G., Becker, K.** (2006). *Jatropha* biodiesel for tropical countries. *Nachwachsende Rohstoffe*, 39, 8.

**Martinez-Herrera, J., Siddhuraju, P., Francis, G., Davila-Ortiz, G., Becker, K.** (2006). Chemical composition, toxic/antimetabolic constituents and effects of different treatments on their levels, in four provenances of *Jatropha curcas* L. from Mexico. *Food Chemistry*, 96, 80-89.

**Muetzel, S., Becker, K.** (2006). Extractability and biological activity of tannins from various tree leaves determined by chemical and biological assays as affected by drying procedure. *Animal Feed Science and Technology*, 125, 139-149.

## **2005**

**Francis, G., Edinger, R., Becker, K.** (2005). A concept for simultaneous wasteland reclamation, fuel production, and socio-economic development in degraded areas in India. Need, potential and perspectives of *Jatropha* plantations. *Natural Resources Forum*, 29, 12-24.

**Sujatha, M., Makkar, H.P.S., Becker, K.** (2005). Shoot bud proliferation from axillary nodes and leaf sections of non-toxic *Jatropha curcas* L. *Plant Growth Regulation*, 47, 83-90.

## **1999**

**Makkar, H.P.S., Becker, K.** (1999). Nutritional studies on rats and fish (carp *Cyprinus carpio*) fed diets containing unheated and heated *Jatropha curcas* meal of a non-toxic provenance. *Plant Foods for Human Nutrition*, 53, 183-192.

## **1998**

**Aderibigbe, A.O., Makkar, H.P.S., Becker, K.** (1998). Comparative evaluation of non-toxic and toxic varieties of *Jatropha curcas* for chemical composition, digestibility, protein degradability and toxic factors. *Food Chemistry*, 62(2), pp. 207-215.

**Argheore, E.M., Makkar, H.P.S., Becker, K.** (1998). Assessment of Lectin Activity in a Toxic and a Non-toxic Variety of *Jatropha curcas* using Latex Agglutination and Haemagglutination Methods and Inactivation of Lectin by Heat Treatments. *Journal of the Science in Food and Agriculture*, 77, 349-352.

**Becker, K., Makkar, H.P.S.** (1998). Effects of phorbol esters in carp (*Cyprinus carpio* L.). *Veterinary and Human Toxicology* 40, 82-86.

**Makkar, H.P.S., Becker, K., Schموok, B.** (1998). Edible provenances of *Jatropha curcas* from Quintana Roo state of Mexico and effect of roasting on antinutrient and toxic factors in seeds. *Plant Food for Human Nutrition*, 52, 31-36.

## 1997

**Makkar, H.P.S., Becker, K., Sporer, F., Wink, M.** (1997). Studies on nutritive potential and toxic constituents of different Provenances of *Jatropha curcas*. *Journal of Agriculture and Food Chemistry*, 45, 3152-3157.

## 1996

**Aderibigbe, A.O., Johnson, C.O.L.E., Makkar, H.P.S., Becker, K., Foidl, N.** (1996). Chemical composition and effect of heat on organic matter- and nitrogen-degradability and some antinutritional components of *Jatropha* meal. *Animal Feed Science Technology*, 67, 223-243.

## Upcoming paper or in preparation (submitted, under review, revised)

## 2013

**Devappa, R.K., Makkar H.P.S., Becker K.** (2013). *In vitro* tumour promotion studies on *Jatropha curcas* phorbol esters. *Food and Chem Toxicol* (submitted).

**Latif, S., Kumar V., Stadlander, T., Makkar, H.P. S. and Becker, K.** (2013). Nutritional and biochemical studies on feeding of hydrolysed and unhydrolysed detoxified *Jatropha curcas* protein isolate in common carp fingerlings (*Cyprinus carpio* L.). *Animal Feed Science and Technology* (under second review).

**Montes, J.M., Technow, F., Bohlinger, B., Becker K.** (2013). Seed quality diversity, trait associations and grouping of accessions in *Jatropha curcas* L.. *Biomass and Bioenergy*, (under review).

**Wulfmeyer, V., Brauch, O., Warrach-Sagi, K., Bauer, H.-S., Schwitalla, T., Becker, K.** (2013). The impact of plantation weather and climate in coastal desert regions. *J. Appl. Meteorol. Climatol.* (submitted).

## 2012

**Kumar, V., Devappa R. K., Makkar H.P.S., Becker K.** (2012). A review on dietary roles of *Jatropha* based proteins in animal nutrition. (In preparation)

**Kumar, V., Makkar, H.P.S., Becker, K.** (2012). Hemato-immunological and biochemical responses in common carp (*Cyprinus carpio* L) fed *Jatropha curcas* and soy protein isolates. *Fish Physiology and Biochemistry* (Revised).

## 2011

**Kumar, V., Makkar H.P.S., Becker K.** (2011). Utilization of a byproduct from *Jatropha* biodiesel industry as a fish meal replacer in common carp *Cyprinus carpio* L. diet. *Aquaculture Research*, revised.

**Nepal, S., Kumar, V., Makkar, H. P. S. and Becker, K.** (2011). Nutritive values of *Jatropha curcas* protein isolate vis-a-vis soy protein isolate in common carp (*Cyprinus carpio* L.) fingerlings. *Journal of the World Aquaculture Society*. (Submitted).

## Paper ready for submission

### 2013 or 2014

**Kumar, V., Devappa, R.K., Makkar, H.P.S., Becker, K.** A review on dietary roles of *Jatropha* based proteins in animal nutrition (ready for submission).

**Latif, S., Kumar V., Stadtlander, T., Makkar, H.P. S. and Becker, K.** Evaluation of non-toxic *Jatropha* protein extracted by aqueous enzymatic process as a fish meal replacement for common carp (ready for submission).

**Latif, S., Makkar, H.P. S. and Becker, K.** Aqueous enzyme-assisted oil and protein extraction from *Jatropha curcas* kernels (ready for submission).

**Latif, S., Makkar, H.P. S. and Becker, K.** Enzyme-assisted aqueous extraction of oil and protein from non-toxic *Jatropha curcas* kernels (ready for submission).

## Book Chapters

### 2012

**Devappa, R.K, Makkar, H.P.S, Becker, K.** (2012). Chapter 21-Phytochemicals in *Jatropha* Seeds and Potential Agro-Pharmaceutical Applications of *Jatropha curcas* Phorbol Esters. N. Carels et al. (eds.), *Jatropha, Challenges for a New Energy Crop: Volume 1: 383, Farming, Economics and Biofuel*, DOI 10.1007/978-1-4614-4806-8\_21

**Devappa, R.K., Makkar, H.P.S.** (2012). Analytical methods for determination of phorbol esters in *Jatropha* plant parts and their products. In: *Symposium Detoxification and Utilization of Jatropha and Castor seed*. Ed. C.M. Rodrigues. Embrapa, Brazil. Jul 4 (2012).

**Makkar, H.P.S., Kumar V., Becker, K.** (2012). Use of detoxified *Jatropha* kernel meal and protein isolate in farm animal species in "Opportunities and

Challenges in Utilizing Co-products of the Biofuel Industry as Livestock Feed", FAO, Rome Italy. Chapter 21, pp. 351-378.

## 1997

**Argheore, E.M., Makkar, H.P.S., Becker, K.** (1997). Lectin Activity in Toxic and Non-toxic Varieties of *Jatropha curcas* using a Latex Agglutination Test. In: Proceedings of Jatropha 97: Biofuels and Industrial Products from *Jatropha curcas*. Eds. Gübitz, G.M. et al., 23-27 Feb., 65-69.

**Makkar, H.P.S., Becker, K.** (1997). Potential of *J. curcas* Seed Meal as a Protein Supplement to Livestock Feed, Constraints to its Utilisation and Possible Strategies to Overcome Constraints. In: Proceedings of Jatropha 97: Biofuels and Industrial Products from *Jatropha curcas*. 23-27 Feb., 190-205.

## Conference papers and Posters

### 2012

**Becker, K.** (2012). *Jatropha curcas* L., eine Mehrnutzungspflanze mit großem Potential. Bonner Netzwerk „Bioenergie und Entwicklung“ – 2. Konferenz GIZ und DIE, 24. September 2012, Bonn, Deutschland.

**Becker, K.** (2012). Projektstandort Madagaskar. Arbeitskreis 1 der aireg, 5. Oktober 2012, Berlin, Deutschland.

**Becker, K.** (2012). Impulsvortrag zu Debatten-Abend „Reicht die Biomasse nur für die Luftfahrt?“ 24. Oktober 2012, WÖLLHAF Konferenz- und Bankettcenter, Stuttgart Airport, Deutschland.

### 2011

**Devappa, R. K., Khanal, S.K.** (2011). Value Added Co-product from Jatropha Biodiesel Production Process. Workshop on-Bioconversion of Biofuel Residues & Value added Co-products: Oceanic Institute, December 1-2, Honolulu (Hawai'i), USA.

**Devappa, R.K., Roach, J., Makkar, H.P.S., Becker, K.** (2011). *In Vitro* Toxicity of *Jatropha curcas* oil phorbol esters. In Vitro Biology Meeting, Raleigh, North Carolina, USA.

**Kumar, V., Makkar, H.P.S., Becker, K.** (2011). Dietary supplementation of isolated *Jatropha* phytate in Nile tilapia (*Oreochromis niloticus* L.): effects on growth and blood chemistry. Aquaculture America 2011, February 28 - March 3, 2011. New Orleans, Louisiana, USA (oral).

**Kumar, V., Makkar, H.P.S., Devappa R.K., Becker K.** (2011). Metabolic effects of *Jatropha curcas*-phytate in fish (Nile tilapia, *Oreochromis niloticus* L.). Oskar Kellner Symposium 2011 on 'Metabolic Flexibility in Animal and Human Nutrition' at Warnemünde, Germany.

**Kumar S., Sahu N.P., Pal A.K., Kumar V., Rajan M.G.** (2011). Interactive effect of temperature and dietary protein level on performance and metabolic



utilization of diets in *Labeo rohita* fingerlings. World Aquaculture 2011, Natal, Brazil.

**Kumar V., Stadtlander, T., Khalil, W.K.B., Makkar, H.P.S., Becker, K.** (2011). Proteins from *Moringa oleifera* kernels as a growth promoter for Nile tilapia (*Oreochromis niloticus* L.) fed fish meal and plant protein based diets. World Aquaculture 2011, Natal, Brazil.

**Latif, S., Kumar V., Makkar, H.P.S., Becker, K.** (2011). Nutritional and biochemical studies on feeding of hydrolyzed and unhydrolysed detoxified *Jatropha curcas* protein isolate in common carp (*Cyprinus carpio* L.) fingerlings. Aquaculture Europe 2011 - Rhodes, Greece.

**Latif, S., Makkar, H.P.S., Becker, K.** (2011). Modified enzyme-assisted aqueous extraction of oil and protein from non-toxic *Jatropha curcas* kernels. ICFEB 2011: International Conference on Food Engineering and Biotechnology, June 24-26, Paris, France.

**Latif, S., Pfannstiel, J., Makkar, H.P.S., Becker, K.** (2011). Allergens presence in peanut proteins extracted by enzymatic aqueous extraction: Analysis by mass spectrometry. 12<sup>th</sup> International Congress on Amino Acids, Peptides and Proteins, August 1-5, Beijing, China.

## 2010

**Akinleye, A., Kumar, V., Makkar, H.P.S., Angulo-Escalante, M.A., Becker, K.** (2010). Kernel meal of a new non-toxic *Jatropha* species (*Jatropha platyphylla*) as a protein source in Nile tilapia (*Oreochromis niloticus* L.) diet. Tropentag 2010, Book of Abstracts, World food system – A contribution from Europa. Aquaculture and fisheries, Ed. Eric Tielkes, September 14 - 16, 2010, ETH Zürich, Switzerland, p. 467.

**Boguhn, J., Rodehutschord, M., Makkar, H.P.S., Becker, K.** (2010). Amino acid digestibility of detoxified *Jatropha* kernel meal in turkeys. European Poultry Conference 2010, 23 - 27 August 2010, Tours, France, (poster).

**Frei, M., Kohno, Y., Makkar, H.P.S., Becker, K.** (2010). The effect of elevated tropospheric ozone on the feeding value of rice straw. International Cooperative Programme on Effects of Air Pollution on Natural Vegetation and Crops: 23rd Task Force Meeting, February 1 - 3, 2010, Tervuren, Belgium, (poster).

**Harter, T., Buhrke, F., Kumar, V., Focken, U., Makkar, H.P.S., Becker, K.** (2010). Detoxified *Jatropha curcas* Kernel Meal as a Protein Source for White Leg Shrimp (*Penaeus vannamei*) Diet. Abstract, Deutscher Tropentag, September 14 - 16, 2010, ETH Zürich, Switzerland, p. 470.

**Kumar, V., Makkar, H.P.S., Becker, K.** (2010). Dietary inclusion of detoxified *Jatropha curcas* kernel meal: Effects on growth performance and metabolic efficiency in common carp, *Cyprinus carpio* L. 64. Tagung der Gesellschaft für Ernährungsphysiologie, 9.-11.3.2010, Göttingen, Germany, (oral).

**Kumar, V., Makkar, H.P.S., Becker, K.** (2010). Growth performance and metabolic efficiency of common carp (*Cyprinus carpio* L.) fed detoxified *Jatropha curcas* kernel meal. 64. Tagung der Gesellschaft für Ernährungsphysiologie, 09. - 11. 03. 2010, Göttingen, Germany, Proc.Soc.Nutr.Physiol, (oral), p. 111.

**Latif, S., Makkar, H.P.S., Becker, K.** (2010). Aqueous enzyme-assisted oil and protein extraction from *Jatropha curcas* kernels. 101<sup>th</sup> AOCS Annual Meeting & Expo, 16. – 19 May 2010, Phoenix, Arizona, USA.

**Nepal, S., Kumar, V., Makkar, H.P.S., Becker, K.** (2010). Comparative nutritional evaluation of *Jatropha* protein isolate and soy protein isolate in common carp (*Cyprinus carpio* L.) fingerlings. European Aquaculture Society: Aquaculture Europe, October 5 - 8, 2010, Porto, Portugal, (oral).

**Oluseun, O., Kumar, V., Makkar, H.P.S., Akinleye, A., Becker, K.** (2010). Evaluation of the dietary inclusion of non-toxic *Jatropha platyphylla* kernel meal on nutritional, biochemical and haematological responses in Nile tilapia (*Oreochromis niloticus*). 64. Tagung der Gesellschaft für Ernährungsphysiologie, 9.-11.03.2010, Göttingen, Germany, (poster).

**Oyeleye, O.O., Kumar, V., Makkar, H.P.S., Akinleye, A., Angulo-Escalante, M.A., Becker, K.** (2010). Nutritional and physiological evaluation of the dietary inclusion of *Jatropha platyphylla* Müll. Arg. kernel meal in Nile tilapia (*Oreochromis niloticus* L.). 64. Tagung der Gesellschaft für Ernährungsphysiologie, 09. - 11. 03. 2010, Göttingen, Germany, Proc.Soc.Nutr.Physiol, (poster), p. 132.

## 2009

**Becker, K., Makkar, H.P.S.** (2009). Sustainable land development and ecosystem conservation through enhancing economic viability of the *Jatropha curcas* based biodiesel production chain using a bio-refinery concept. ERSEC International Conference: Sustainable Land Use and Ecosystem Conservation, May 4 - 7, 2009, Beijing, China, Book of Abstracts, (oral), p. 57.

**Becker, K.** (2009). Biofuel from *Jatropha curcas* - Perspectives for the tropical regions. AFECG Kongreß "Tropical oils: socio-economy production and applications, April 7 - 8, 2009, Paris, France, (oral).

**Devappa, R.K., Makkar, H.P.S., Becker, K.** (2009). Fate of phorbol esters in soil. 13th Annual Green Chemistry & Engineering Conference, June 23 - 25, 2009, College Park, Maryland, USA, (poster).

**Devappa, R.K., Maes, J., Makkar, H.P.S., De Greyt, W., Becker, K.** (2009). Isolation of phorbol esters from *Jatropha curcas* oil and quality of produced biodiesel. 2nd International Congress on Biodiesel: The Science and the Technologies, November 15 - 17, 2009, Munich, Germany, (oral).

**Kumar, V., Makkar, H.P.S., Becker, K.** (2009). Substitution of fish meal by detoxified *Jatropha curcas* protein isolate and soya protein isolate in common carp (*Cyprinus carpio* L.) diets: Effect on growth performance, biochemical and haematological parameters. Asian Pacific Aquaculture 2009: Sustainable Aquaculture and Quality Seafood for All", November 3 - 6, 2009, Kuala Lumpur, Malaysia, Abstracts, (oral), p. 297.

**Kumar, V., Makkar, H.P.S., Becker, K.** (2009). Nutritional, biochemical and haematological response in rainbow trout (*Oncorhynchus mykiss*) fed detoxified *Jatropha curcas* kernel meal. World Aquaculture 2009: "A Blue Revolution to Feed the world", September 25 - 29, 2009, Veracruz, Mexico, Abstracts, (oral), p. 467.

**Kumar, V., Makkar, H.P.S., Becker, K.** (2009). Detoxified *Jatropha curcas* kernel meal: An excellent fish meal replacer in common carp (*Cyprinus carpio* L.) diet. Abstract of Presentation at Deutscher Tropentag, October 6 - 8, 2009, Hamburg, Germany, p. 317.

**Makkar, H.P.S., Becker, K.** (2009). Challenges and opportunities for using byproducts from the production of biodiesel from *Jatropha* oil as livestock feed. Animal Nutrition World Conference 2009, February 14-17, 2009, New Delhi, India, Proceedings, (oral), pp. 168-170.

**Makkar, H.P.S., Kumar, V., Karaj, S., Kratzeisen, M., Tipraqsa, P., Müller, J., Berger, T., Amselgruber, M., Becker, K.** (2009). Sustainable land development and ecosystem conservation through enhancing economic viability of the *Jatropha curcas* based biodiesel production chain using a bio-refinery concept. ERSEC conference on sustainable land use and ecosystem conservation, 4-7 May 2009, Beijing, China, ERSEC Proceedings, pp. 210-235.

**Sauerborn, J., Becker, K., Borriss, R., Cai, Z.C., Chen, J., Clemens, J., Cotter, M., Cui, T.N., Felbermeier, B., Fischer, C., Goldbach, H., Heck, P., Huang, J.K., Langenberger, G., Makeshin, F., Makkar, H.P.S., Mosandl, R., Mueller-Hansen, K., Niemeyer, B., Nieder, R., Roelcke, M., Schmidhalter, U., Schütt, C., Speiker, H., Wu, J., Zhang, F.S., Zhang, W.L.** (2009). Enhancing the relationships between society, economy and ecology - The Sino-German co-operative projects on sustainable land use in a nutshell. Sustainable Land Use and Ecosystem Conservation, May 4 - 7, 2009, Beijing, China, ERSEC Proceedings, (oral), pp. 9-24.

## 2008

**Azuhnwi, B., Hoffmann, E.M., Becker, K.** (2008). Competition for resources in a changing world : New drive for rural development. Tropentag 2008, October 7-9, 2008, University of Hohenheim, Stuttgart, Germany, Proceedings, p. 428.

**Becker, K.** (2008). Biofuel from *Jatropha curcas* - Perspectives for tropical regions (Invited Talk). 21st Annual Meeting society for Tropical Ecology (Gtö), Consequences of climate change on tropical ecosystems, February 19, 2008, Centre for Agriculture in the Tropics and Subtropics, University of Hohenheim, Germany, (oral).

**Becker, K.** (2008). Biofuel from *Jatropha curcas* - Perspectives for Tropical Regions. Society for Tropical Ecology - consequences of Climate Change on Tropical Ecosystems, February 18 - 22, 2008, University of Hohenheim, Centre for Agriculture in the Tropics and Subtropics, Proceedings, (oral), p. 31.

**Becker, K.** (2008). Ökosprit aus der Wüste - das *Jatropha* Projekt (Invited Talk). Nahrungsmittel oder Rohstoffreserve? Weltweite Potenziale der Bioenergie, 16. Februar 2008, FDP/DVP Fraktion, Haus des Landtags, Stuttgart, Germany, (oral).

**Kumar, V., Makkar, H.P.S., Becker, K.** (2008). Detoxification of *Jatropha curcas* seed meal and its utilization as a protein source in fish diet. 25th ESCPB Congress, September 7-11, 2008, Ravenna, Italy, Comparative Biochemistry and Physiology - A: Comparative Physiology, (oral), pp. 13-14.

**Makkar, H.P.S., Becker, K., Liu, J.-X.** (2008). The role of *Jatropha curcas* in sustainable land management and towards energy and food security – a joint BMBF-MoST effort. ERSEC International Conference - 2008 - Sustainable Land

use and Water Management, 8-10 October 2008, Beijing, China, Proceedings, (oral), pp. 53-61.

## 2007

**Becker, K.** (2007). Global Importance of *Jatropha curcas* for warmer regions: An ecological and socioeconomical analysis. DFG Oleochemie Tagung, February 2007, Hamburg, Germany, (oral).

**Becker, K.** (2007). Biodiesel Produktion in der Wüste mit Abwasser der Stadt Luxor. Stuttgarter Partnerschaft "Eine Welt", July 3, 2007, University of Hohenheim, (Stuttgart, Germany).

**Becker, K.** (2007). *Jatropha curcas* - A potential for tomorrow's biodiesel (invited talk). International Congress on Biodiesel: The Science and Technologies, November 5 - 7, 2007, Vienna, Austria, (oral).

**Becker, K.** (2007). *Jatropha curcas* - Opportunities for the tropical regions (invited talk). 7th Session of the UNCCD forum for parliamentarians, September 12 - 13, 2007, Madrid, Spain, (oral).

**Becker, K.** (2007). *Jatropha curcas* - Opportunities for the tropical regions (invited talk). COP 8, September 20, 2007, Barcelona, Spain, (oral).

Gosh, A., Patolia JS, Chaudhary DR, Chikara J, Rao SN Kumar, D. (2007). Response of *Jatropha curcas* under different spacing to jatropha de-oiled cake, FACT seminar on *Jatropha curcas* L. Agronomy and Genetics, Article No. 8.

**Nuss, P., Kleisinger, S., Becker, K.** (2007). Investigation of biotechnical conditions of *Jatropha curcas* L. toward gradual harvest mechanisation. Tropentag 2007, October 9-11, 2007, Witzenhausen, Germany, Book of Abstracts, p. 84.

**Selje-Aßmann, N., Makkar, H.P.S., Hoffmann, E.M., Francis, G., Becker, K.** (2007). Quantitative and qualitative analyses of seed storage proteins from toxic and non-toxic varieties of *Jatropha curcas* L. International Symposium on energy and Protein Metabolism, September 9 - 14, 2007, Vichy, France, EAAP publication, (poster), pp. 625-626.

## 2006

**Becker, K.** (2006). Food and feed potential of *Jatropha curcas* seed meal and cake. *Jatropha* symposium, 7 - 15 August 2006, Departamento de Graduados e Investigacion en Alimentos, Escuela Nacionol de Ciencias Biologicas, JPN, Mexico, (oral).

## 2005

**Becker, K.** (2005). *Jatropha*-Nutzung in Indien. GTZ Fachtagung - "Nachwachsende Rohstoffe - eine Option für armutsorientierte Entwicklung?", June 16 - 17, 2005, Niedernhausen, Germany, (oral).

**Richter, N., Francis, G., Becker, K.** (2005). Differential treatment of non-toxic *Jatropha curcas* L. and its impact on growth performance and whole body mineral absorption of common carp, *Cyprinus carpio* L. Abstract of Presentation at

Deutscher Tropentag, October 11-13, 2005, Stuttgart-Hohenheim, Stuttgart Germany, p. 242.

**Selje, N., Hoffmann, E.M., Becker, K.** (2005). New plant materials have the potential to reduce the degradation of dietary protein by rumen microbes in vitro. 57. Tagung der Gesellschaft für Ernährungsphysiologie, March 8 - 10, 2005, Hohenheim, Germany, Proc.Soc.Nutr.Physiol, (Oral), p. 66.

## Research papers (PhD -, Diplomarbeiten and Master thesis)

### PhD

#### 2012

**Devappa, R. K.** (2012): Isolation, characterization and potential agro-pharmaceutical applications of phorbol esters from *Jatropha curcas* oil. PhD Thesis, University of Hohenheim, Institute for Animal Production in the Tropics and Subtropics, Stuttgart, Germany.

**Richter, N.** (2012): Evaluation of suitability of non-toxic and detoxified *Jatropha curcas* L. meal as feed for fingerling common carp, *Cyprinus carpio* L.: with reference to phytase application. PhD Thesis, University of Hohenheim, Institute for Animal Sciences in the Tropics and Subtropics, Stuttgart, Germany.

#### 2011

**Grass, M.** (2011). Opportunities and constraints for agrofuels in developing countries: Case studies on economic viability and employment effects of *Jatropha* production. PhD Thesis, University of Hohenheim, Institute of Agricultural Economics and Social Sciences in the Tropics and Subtropics, Stuttgart, Germany.

**Kumar, V.** (2011): *Jatropha* meal and protein isolate as a protein source in aquafeed. PhD Thesis, University of Hohenheim, Institute for Animal Production in the Tropics and Subtropics, Stuttgart, Germany.

**Rajaona, A.M.** (2011): Physiological and growth responses of *Jatropha curcas* L. to water, nitrogen and salt stresses. PhD Thesis, University of Hohenheim, Institute of Plant Production and Agroecology in the Tropics and Subtropics, Stuttgart, Germany.

### Master and Diplom

#### 2011

**Bosch, C.** (2011): Impact assessment of a bio fuel plantation in Madagascar using household panel data. Master Thesis, University of Hohenheim, Institute of Agricultural Economics and Social Sciences in the Tropics and Subtropics, Department of Rural Development Theory and Policy, Stuttgart, Germany.

**Ramongolalaina, C.** (2011): Intégration de rangs de *Jatropha curcas* L. dans la culture de manioc en vue de réduire l'érosion hydrique. Diplomarbeit, Université d'Antananarivo, Antananarivo, Madagascar.

## 2010

**Nasibulina, A.** (2010): Natural control of *Pempelia morosalis* and other pests through Habitat Management in *Jatropha curcas* plantation in south-central Madagascar. Master Thesis, University of Hohenheim, Institute of Phytomedicine, Department of applied entomology, Stuttgart, Germany.

**Nepal, S.** (2010): Fishmeal replacement with *Jatropha curcas* (L.) protein isolate in fish diet: Effects on growth, nutrient utilization and haematology in common carp (*Cyprinus carpio* L.). Master Thesis, University of Hohenheim, Institute for Animal Production in the Tropics and Subtropics, Stuttgart, Germany.

**Probst, L.** (2010): Seed Storability of *Jatropha curcas* L.. Diplomarbeit, University of Hohenheim, Institute of Plant Breeding, Seed Science and Population Genetics, Stuttgart, Germany.

## 2009

**Bünner, N.M.** (2009): Analysis of the socio-economic situation of households in the vicinity of a *Jatropha* plantation in Madagascar. Master Thesis, University of Hohenheim, Institute of Agricultural Economics and Social Sciences in the Tropics and Subtropics, Stuttgart, Germany.

**Oyeleye, O.O.** (2009): Effect of the dietary inclusion of *Jatropha platyphylla* kernel meal on nutritional, biochemical and haematological responses in Nile tilapia (*Oreochromis niloticus*). Diplomarbeit, University of Hohenheim, Institute for Animal Production in the Tropics and Subtropics, Stuttgart, Germany.

**Verzeletti, F.M.** (2009): Analyse des Erosionsminderungspotentials von *Jatropha curcas* Anbau durch Integration in ein traditionelles Maniokanbausystem in Madagaskar. Diplomarbeit. Universität Hohenheim, Institut für Bodenkunde und Standortlehre, Stuttgart, Deutschland.

## 2007

**Nuss, P.** (2007): Investigation of Biotechnical Conditions of *Jatropha curcas* L. toward Gradual Harvest Mechanisation. Master Thesis, Institute of Agricultural Engineering, Process Engineering in Special Crop Production, University of Hohenheim, Stuttgart, Germany.

## Research Projects coordinated by Prof. Dr. Becker

(Titel, Auftraggeber/Finanzierung, Dauer)

### Aktuell laufend

**Entwicklung von kostengünstigen Futtermitteln für die tropische Aquakultur für lokale/regionale Märkte.** Förderprojekt BLE – FishforFood. Mai 2012 – April 2015.

**Integrierter *Jatropha curcas* Entkapselungs-, Entschälungs-, Entölungs und Entgiftungsprozess zur effizienten Produktion von hochwertigem Designer-Proteinfutter und Pflanzenöl.** Förderprojekt BMBF – Ressourceneffizienz. März 2012 – Feb. 2014.

**Jatropha**pflanzenöl zum Biokraftstoffeinsatz im Transportsektor in Madagaskar – Bioenergieprojekt zur Reduktion von Treibhausgasen. EnBW Energie Baden-Württemberg AG. Juli 2007 – offen.

**Jatropha curcas** zur Begrünung der Wüste von Luxor. EnBW Energie Ba-Wü AG, Gouvernement von Luxor, Ministerium für Landwirtschaft und Umwelt. Dez. 2010 – offen.

**Jatropha curcas** – Züchtungsprojekt. JatroSelect und JatroSolutions GmbH. Okt. 2009 – 2022.

**Jatropha curcas** Anbau in der Wüste unter Verwendung des Abwassers der Stadt Luxor (Ägypten). Ministerium für Landwirtschaft und Umwelt, Kairo, Ägypten; Gouvernement von Luxor; Universität Hohenheim, EnBW Energie Baden-Württemberg AG. 2006 – offen

### **Abgeschlossen**

**Biofuels from eroded soils in India.** DaimlerChrysler AG, DEG. Juni 2003 – Dez 2007

**Wirtschaftliche Einsatzmöglichkeiten des *Jatropha curcas* L. Anbaus zur Rekultivierung degradierter ehemaliger Naturwaldböden und zur Bekämpfung der Bodenerosion in Madagaskar – eine multiple wissenschaftliche Analyse.** Stiftung Energieforschung Baden-Württemberg; EnBW Regenwaldstiftung. April 2008 – Dez 2011.

**Deutsch-chinesisches Verbundprojekt Jatropha: Optimierung der Extraktion und Nutzung von Jatrophaöl sowie effiziente Verwertung von Jatropha-Mehl und Proteinkonzentrat für die Tierernährung.** Förderprojekt Meal - BMBF. September 2007 – Juni 2010.